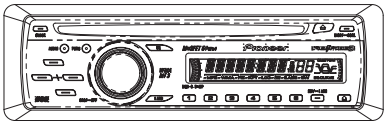
Pioneer sound.vision.soul

Service Manual



DEH-3850MP/XU/ES

ORDER NO.
CRT3556

HIGH POWER CD/MP3/WMA PLAYER WITH FM/AM TUNER

DEH-3850MP/XU/ES
DEH-3850MP/XU/CN
DEH-3850MPH/XU/GS

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech.Module	Remarks
CX-3164	CRT3583	S10.5COMP1	CD Mech. Module : Circuit Descriptions, Mech. Descriptions, Disassembly

For details, refer to "Important Check Points for Good Servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2005**

K-ZZA. DEC 2005 Printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

● **Safety Precautions for those who Service this Unit.**

- **When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

Caution:

1. **During repair or tests, minimum distance of 13cm from the focus lens must be kept.**
2. **During repair or tests, do not view laser beam for 10 seconds or longer.**

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replaced only with the same or equivalent type recommended by the manufacture.
Discord used batteries according to the manufacture's instructions.

● **CD Section Precaution**

1. You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
3. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY".
4. After replacing the pickup unit, be sure to check the grating.

COMPACT disc DIGITAL AUDIO

COMPACT disc DIGITAL AUDIO TEXT

Plays Windows Media™

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

SAFETY INFORMATION 2
1. SPECIFICATIONS 5
2. EXPLODED VIEWS AND PARTS LIST 8
2.1 PACKING 8
2.2 EXTERIOR 10
2.3 CD MECHANISM MODULE 12
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM 14
3.1 BLOCK DIAGRAM 14
3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE) 16
3.3 KEYBOARD UNIT 22
3.4 CD MECHANISM MODULE(GUIDE PAGE) 24
4. PCB CONNECTION DIAGRAM 34
4.1 TUNER AMP UNIT 34
4.2 KEYBOARD UNIT 38
4.3 CD CORE UNIT(S10.5COMP1) 40
5. ELECTRICAL PARTS LIST 42
6. ADJUSTMENT 46
6.1 CD ADJUSTMENT 46
6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT 48
6.3 ERROR MODE 50
6.4 SYSTEM MICROCOMPUTER TEST PROGRAM 51
7. GENERAL INFORMATION 52
7.1 DIAGNOSIS 52
7.1.1 DISASSEMBLY 52
7.1.2 CONNECTOR FUNCTION DESCRIPTION 55
7.2 PARTS 56
7.2.1 IC 56
7.2.2 DISPLAY 66
7.3 OPERATIONAL FLOW CHART 68
8. OPERATIONS 69

1. SPECIFICATIONS

● DEH-3850MP/XU/ES

General

Rated power source ..... 14.4 V DC
(allowable voltage range: 12.0 – 14.4 V DC)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Backup current ..... 5 mA or less
Dimensions (W × H × D):
DIN
Chassis ..... 178 × 50 × 157 mm
Nose ..... 188 × 58 × 19 mm
D
Chassis ..... 178 × 50 × 162 mm
Nose ..... 170 × 48 × 14 mm
Weight ..... 1.3 kg

Audio

Maximum power output ..... 50 W × 4
50 W × 2/4 Ω + 70 W × 1/2 Ω (for subwoofer)
Continuous power output ... 22 W × 4 (50 – 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Load impedance ..... 4 – 8 Ω × 4
4 – 8 Ω × 2 + 2 Ω × 1
Preout max output level/output impedance ..... 2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer):
Low
Frequency ..... 40/80/100/160 Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
Mid
Frequency ..... 200/500/1k/2k Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
High
Frequency ..... 3.15k/8k/10k/12.5k Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
Loudness contour:
Low ..... +3.5 dB (100 Hz), +3 dB (10 kHz)
Mid ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
High ..... +11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)
HPF:
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –12 dB/oct
Subwoofer (mono):
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –18 dB/oct
Gain ..... +6 – –24 dB
Phase ..... Normal/Reverse
Bass boost:
Gain ..... +12 – 0 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format:
Sampling frequency ..... 44.1 kHz
Number of quantization bits ..... 16; linear
Frequency characteristics ... 5 – 20 000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)
MP3 decoding format ..... MPEG-1 & 2 Audio Layer 3
WMA decoding format ..... Ver. 7, 7.1, 8, 9, 10 (2ch audio)
(Windows Media Player)
WAV signal format ..... Linear PCM & MS ADPCM

FM tuner

Frequency range ..... 87.5 – 108.0 MHz
Usable sensitivity ..... 8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 10 dBf (0.9 μV/75 Ω, mono)
Signal-to-noise ratio ..... 75 dB (IEC-A network)
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)
0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response ..... 30 – 15 000 Hz (±3 dB)
Stereo separation ..... 45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 531 – 1 602 kHz (9 kHz)
530 – 1 640 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Signal-to-noise ratio ..... 65 dB (IEC-A network)

Infrared remote control

Wavelength ..... 940 nm ±50 nm
Output ..... typ; 12 mw/sr per Infrared LED

Note

Specifications and the design are subject to possible modifications without notice due to improvements. ■

● DEH-3850MP/XU/CN

一般

额定电源 ..... 14.4 V DC
（容许电压范围： 12.0－14.4 V DC）
接地系统 ..... 负极型
最大电流消耗 ..... 10.0 A
Backup current ..... 5 mA or less
尺寸（宽×高×深）：
DIN
机身 ..... 178×50×157 毫米
前端部分 ..... 188×58×19 毫米
D
机身 ..... 178×50×162 毫米
前端部分 ..... 170×48×14 毫米
重量 ..... 1.3 公斤

音频

最大输出功率 ..... 50 W × 4
50 W × 2/4 Ω + 70 W × 1/2 Ω（对于超低音扬声器）
各声道连续输出功率 ..... 22W×4（50－15 000Hz，5% THD，4Ω负载，两声道驱动）
负载阻抗 ..... 4－8Ω×4
4－8Ω×2+2Ω×1
前输出最大输出电平 / 输出阻抗 ..... 2.2 V / 1 kΩ
均衡器（3频带参量均衡器）：
低频
频率 ..... 40/80/100/160 Hz
Q因子 ..... 0.35/0.59/0.95/1.15（加强后+6 dB）
增益 ..... ±12 dB
中频
频率 ..... 200/500/1k/2k Hz
Q因子 ..... 0.35/0.59/0.95/1.15（加强后+6 dB）
增益 ..... ±12 dB
高频
频率 ..... 3.15k/8k/10k/12.5k Hz
Q因子 ..... 0.35/0.59/0.95/1.15（加强后+6 dB）
增益 ..... ±12 dB
响度等高线
低 ..... +3.5 dB（100 Hz），+3 dB（10 kHz）
中 ..... +10 dB（100 Hz），+6.5 dB（10 kHz）
高 ..... +11 dB（100 Hz），+11 dB（10 kHz）
（音量： -30 dB）
HPF：
频率 50/63/80/100/125Hz
斜率 ..... －12 dB/oct
超低音扬声器（单声道）：
频率 50/63/80/100/125Hz
斜率 ..... -18 dB/oct
增益 ..... +6－-24dB
相位 ..... 正相 / 反相
低音增强：
增益 ..... +12－0dB

CD 播放机

系统 ..... CD音频系统
可用碟片 ..... CD
信号格式：
取样频率 ..... 44.1 kHz
量化比特数 ..... 16；线性
频率特性 ..... 5－20 000 Hz（±1 dB）
信噪比 ..... 94 dB（1 kHz）（IEC-A网络）
动态范围 ..... 92 dB（1 kHz）
声道数 ..... 2（立体声）
MP3解码格式 ..... MPEG-1 & 2 Audio Layer 3
WMA解码格式 ..... 第7、7.1、8、9、10版本（双声道音频）（Windows Media Player）
WAV信号格式 ..... 线性PCM&MS ADPCM

FM调谐器

频率范围 ..... 87.5－108.0 MHz
有效灵敏度 ..... 8 dBf（0.7 μV/75 Ω，单声道，S/N： 30 dB）
50 dB静噪灵敏度 ..... 10 dBf（0.9 μV/75 Ω，单声道）
信噪比 ..... 75 dB（IEC-A网络）
失真 ..... 0.3 %（65 dBf，1 kHz，立体声时）
0.1 %（65 dBf，1 kHz，单声道时）
频率响应 ..... 30－15 000 Hz（±3 dB）
立体声分离度 ..... 45 dB（65 dBf，1 kHz时）

AM调谐器

频率范围 ..... 531－1 602 kHz（9 kHz）
530－1 640 kHz（10 kHz）
有效灵敏度 ..... 18 μV（S/N: 20 dB）
信噪比 ..... 65 dB（IEC-A网络）

注意

因产品改进，规格和设计若有变更，恕不另行通知。 ▣

● DEH-3850MPH/XU/GS

General

Rated power source ..... 14.4 V DC
(allowable voltage range: 12.0 – 14.4 V DC)
Grounding system ..... Negative type
Max. current consumption
..... 10.0 A
Backup current ..... 5 mA or less
Dimensions (W × H × D):
DIN
Chassis ..... 178 × 50 × 157 mm
Nose ..... 188 × 58 × 19 mm
D
Chassis ..... 178 × 50 × 162 mm
Nose ..... 170 × 48 × 14 mm
Weight ..... 1.3 kg

Audio

Maximum power output ..... 50 W × 4
50 W × 2/4 Ω + 70 W × 1/2 Ω (for subwoofer)
Continuous power output ... 22 W × 4 (50 – 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Load impedance ..... 4 – 8 Ω × 4
4 – 8 Ω × 2 + 2 Ω × 1
Preout max output level/output impedance
..... 2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer):
Low
Frequency ..... 40/80/100/160 Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
Mid
Frequency ..... 200/500/1k/2k Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
High
Frequency ..... 3.15k/8k/10k/12.5k Hz
Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain ..... ±12dB
Loudness contour:
Low ..... +3.5 dB (100 Hz), +3 dB (10 kHz)
Mid ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
High ..... +11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)
HPF:
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –12 dB/oct
Subwoofer (mono):
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –18 dB/oct
Gain ..... +6 – –24 dB
Phase ..... Normal/Reverse
Bass boost:
Gain ..... +12 – 0 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format:
Sampling frequency ..... 44.1 kHz
Number of quantization bits
..... 16; linear
Frequency characteristics ... 5 – 20 000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)
MP3 decoding format ..... MPEG-1 & 2 Audio Layer 3
WMA decoding format ..... Ver. 7, 7.1, 8, 9, 10 (2ch audio)
(Windows Media Player)
WAV signal format ..... Linear PCM & MS ADPCM

FM tuner

Frequency range ..... 87.5 – 108.0 MHz
Usable sensitivity ..... 8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 10 dBf (0.9 μV/75 Ω, mono)
Signal-to-noise ratio ..... 75 dB (IEC-A network)
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)
0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response ..... 30 – 15 000 Hz (±3 dB)
Stereo separation ..... 45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 531 – 1 602 kHz (9 kHz)
530 – 1 640 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Signal-to-noise ratio ..... 65 dB (IEC-A network)

Infrared remote control

Wavelength ..... 940 nm ±50 nm
Output ..... typ; 12 mw/sr per Infrared LED

Note

Specifications and the design are subject to possible modifications without notice due to improvements. ▣

2. EXPLODED VIEWS AND PARTS LIST

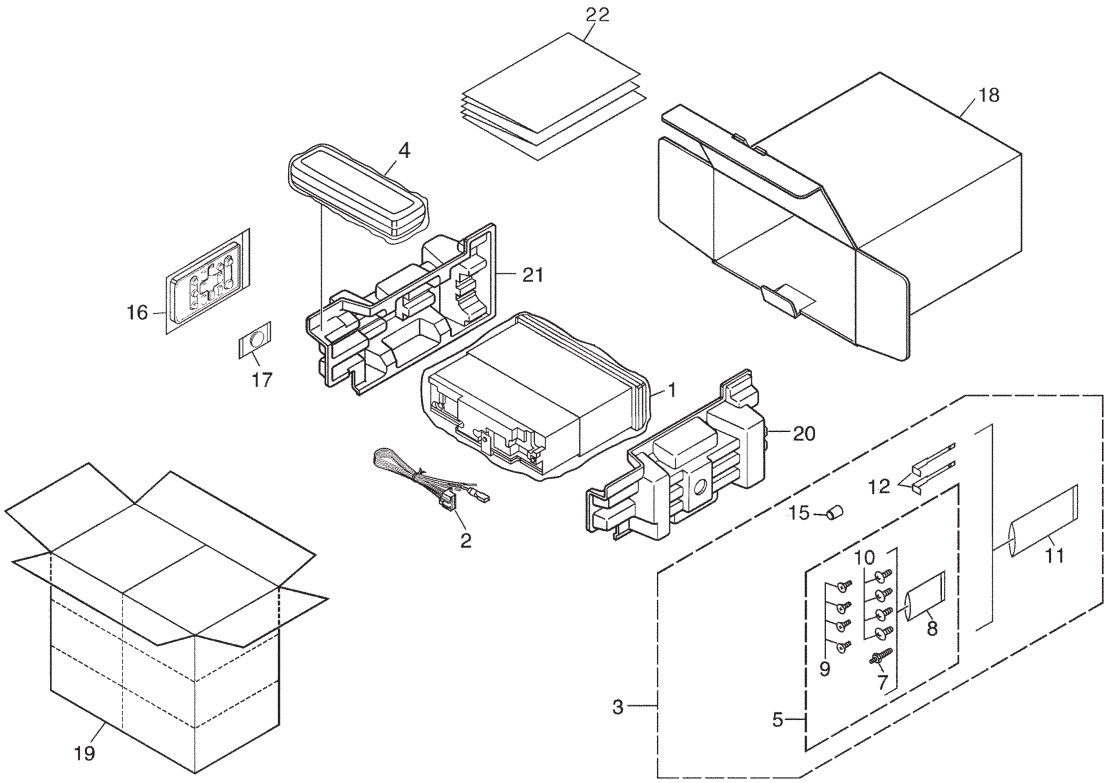
*NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*

• The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

• Screw adjacent to▽mark on the product are used for disassembly.

• For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)

2.1 PACKING



(1) PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Polyethylene Bag	CEG-162
	2	Cord Assy	XDE7008
	3	Accessory Assy	CEA4850
	4	Case Assy	CXB3520
	5	Screw Assy	CEA3849
	6	•••••	
	7	Screw	CBA1650
*	8	Polyethylene Bag	CEG-127
	9	Screw	CRZ50P090FTC
	10	Screw	TRZ50P080FTC
*	11	Polyethylene Bag	CEG-158
	12	Handle	CNC5395
	13	•••••	
	14	•••••	
	15	Bush	CNV3930
	16	Remote Control Assy	CXC5719
*	17	Battery	CEX1065
	18	Carton	Contrast table(2)
	19	Contain Box	Contrast table(2)
	20	Protector	YHP5008
	21	Protector	YHP5009
	22-1	Owner's Manual	Contrast table(2)
	22-2	Owner's Manual	Contrast table(2)
	22-3	Installation Manual	Contrast table(2)
	22-4	Caution Card	CRP1310
*	22-5	Warranty Card	Contrast table(2)

(2) CONTRAST TABLE

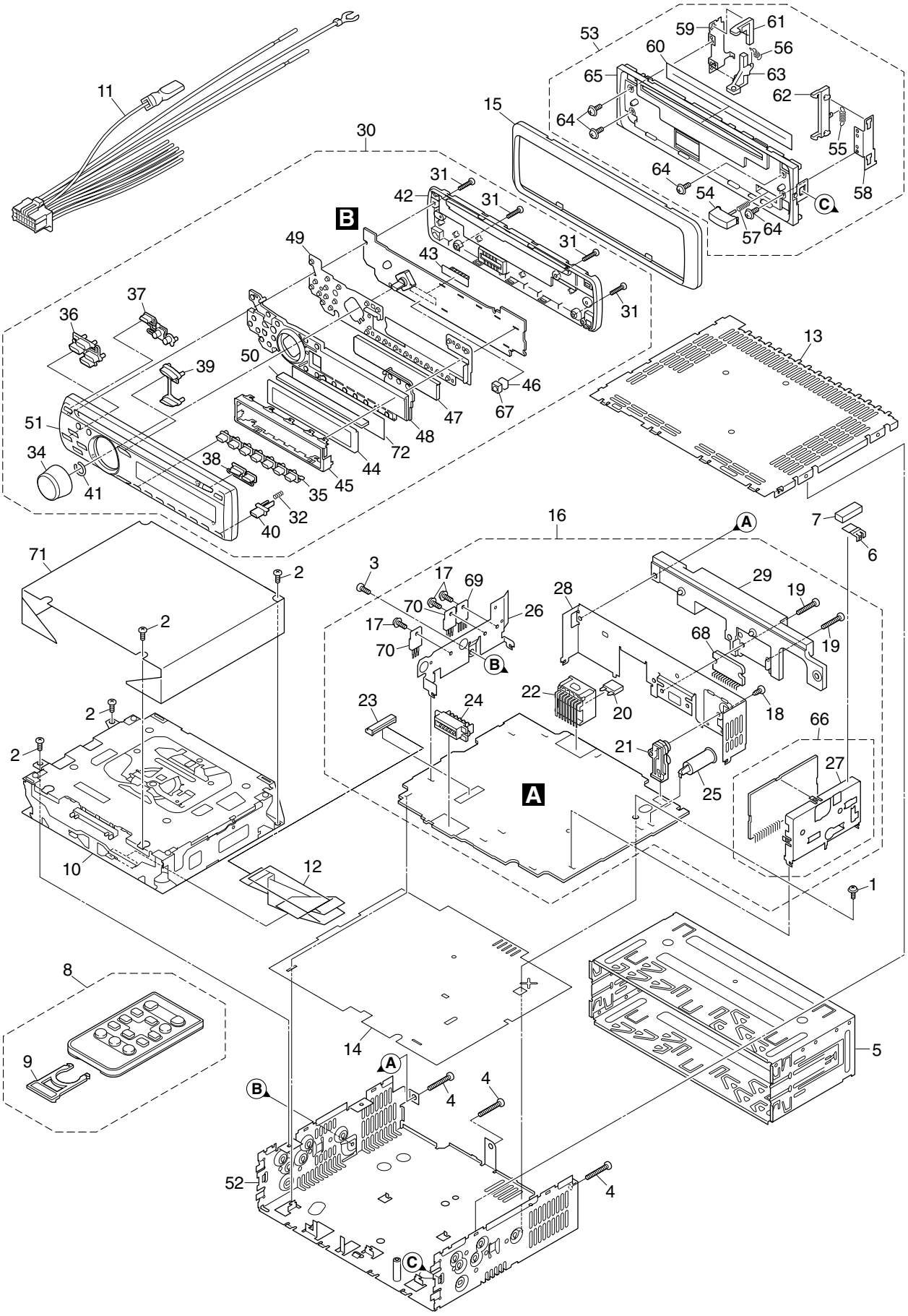
DEH-3850MP/XU/ES , DEH-3850MP/XU/CN and DEH-3850MPH/XU/GS are constructed the same except for the following:

Mark	No.	Description	DEH-3850MP/XU/ES	DEH-3850MP/XU/CN	DEH-3850MPH/XU/GS
	18	Carton	YHG5053	YHG5052	YHG5051
	19	Contain Box	YHL5053	YHL5052	YHL5051
	22-1	Owner's Manual	YRD5052	YRB5021	YRD5055
	22-2	Owner's Manual	YRD5053	Not used	Not used
	22-3	Installation Manual	YRD5054	YRB5022	YRD5056
*	22-5	Warranty Card	Not used	ARY7046	Not used

Owner's Manual,Installation Manual

Part No.	Language
YRD5052	English, Spanish, Portuguese(B)
YRD5053	Traditional Chinese, Arabic
YRD5054	English, Spanish, Portuguese(B),Traditional Chinese, Arabic
YRB5021,YRB5022	Traditional Chinese
YRD5055,YRD5056	English,Traditional Chinese, Arabic

2.2 EXTERIOR


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
A
B
C

(1) EXTERIOR SECTION PARTS LIST

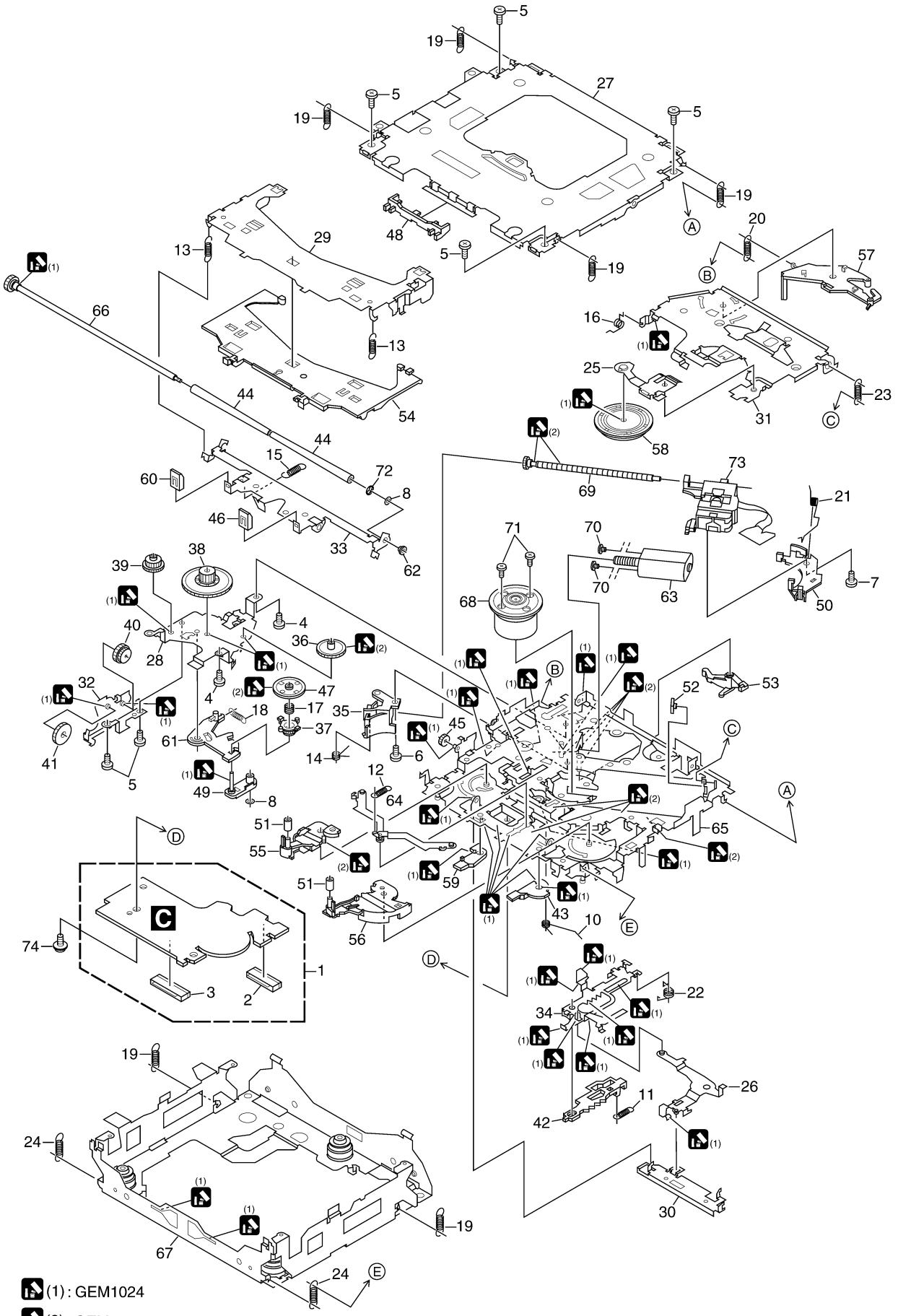
Mark	No.	Description	Part No.
	1	Screw	ASZ26P050FTC
	2	Screw	BSZ26P060FTC
	3	Screw	BSZ30P060FTC
	4	Screw	BSZ30P200FTC
	5	Holder	CNC8659
	6	Earth Plate	CNC8915
	7	Cushion	CNM8890
	8	Remote Control Assy	CXC5719
	9	Cover	CNS7068
	10	CD Mechanism Module(S10.5)	CXK5750
	11	Cord Assy	XDE7008
	12	Cable	YDE5013
	13	Case	YNB5008
	14	Insulator	YNM5012
	15	Panel	Contrast table(2)
	16	Tuner Amp Unit	Contrast table(2)
	17	Screw	ASZ26P060FTC
	18	Screw	BPZ26P080FTC
	19	Screw	BSZ26P160FTC
⚠	20	Fuse(10 A)	CEK1208
	21	Pin Jack(CN351)	CKB1057
	22	Plug(CN901)	CKM1376
	23	Connector(CN701)	CKS3834
	24	Connector(CN803)	CKS4944
	25	Antenna Jack(CN401)	CKX1056
	26	Holder	CND1328
	27	Holder	CND1054
	28	Holder	YNC5020
	29	Heat Sink	YNR5004
	30	Detachable Assy	Contrast table(2)
	31	Screw	BPZ20P100FTB
	32	Spring	CBH2210
	33	•••••	
	34	Knob(SOURCE,VOLUME)	YAA5005
	35	Button(1-6,SW)	YAC5059
	36	Button(UP,DOWN,LEFT,RIGHT)	Contrast table(2)
	37	Button(CLOCK,AUDIO,FUNCTION)	YAC5061
	38	Button(EJECT,DISPLAY)	YAC5062
	39	Button(EQ,BAND)	YAC5063
	40	Button(DETACH)	YAC5071
	41	Spring	YBH5003
	42	Cover	YNS5103
	43	Connector(CN1801)	CKS4943
	44	LCD(LCD1801)	Contrast table(2)
	45	Holder	YNC5012
	46	Cushion	YNM5029
	47	Lighting Conductor	YNV5024
	48	Lighting Conductor	YNV5025
	49	Rubber	YNV5026
	50	Connector	YNV5033
	51	Grille Unit	Contrast table(2)
	52	Chassis Unit	YXA5128
	53	Panel Unit	YXA5154
	54	Button(DETACH)	CAC4836
	55	Spring	CBH1835
	56	Spring	CBH2208
	57	Spring	CBH2367
	58	Bracket	CNC6791
*	59	Holder	CNC8042
	60	Cover	CNM6276
	61	Arm	CNV4692
	62	Arm	CNV4728
*	63	Arm	CNV5576
	64	Screw	IMS20P030FTB
*	65	Panel	YNS5046
	66	FM/AM Tuner Unit	CWE1952
	67	IC(IC1802)	TSOP4840SB1
	68	IC(IC301)	PAL007B
	69	IC(IC921)	NJM2388F84
	70	Transistor(Q911, 702)	2SD2396
	71	Sheet	CNM9404
	72	Sheet	Contrast table(2)

(2) CONTRAST TABLE

DEH-3850MP/XU/ES , DEH-3850MP/XU/CN and DEH-3850MPH/XU/GS are constructed the same except for the following:

Mark	No.	Description	DEH-3850MP/XU/ES	DEH-3850MP/XU/CN	DEH-3850MPH/XU/GS
	15	Panel	YNS5104	YNS5132	YNS5133
	16	Tuner Amp Unit	YWM5111	YWM5109	YWM5107
	30	Detachable Assy	YXA5116	YXA5115	YXA5114
	36	Button (UP,DOWN,LEFT,RIGHT)	YAC5060	YAC5089	YAC5101
	44	LCD(LCD1801)	YAW5055	YAW5055	YAW5067
	51	Grille Unit	YXA5149	YXA5148	YXA5147
	72	Sheet	Not used	Not used	YNM5020

2.3 CD MECHANISM MODULE

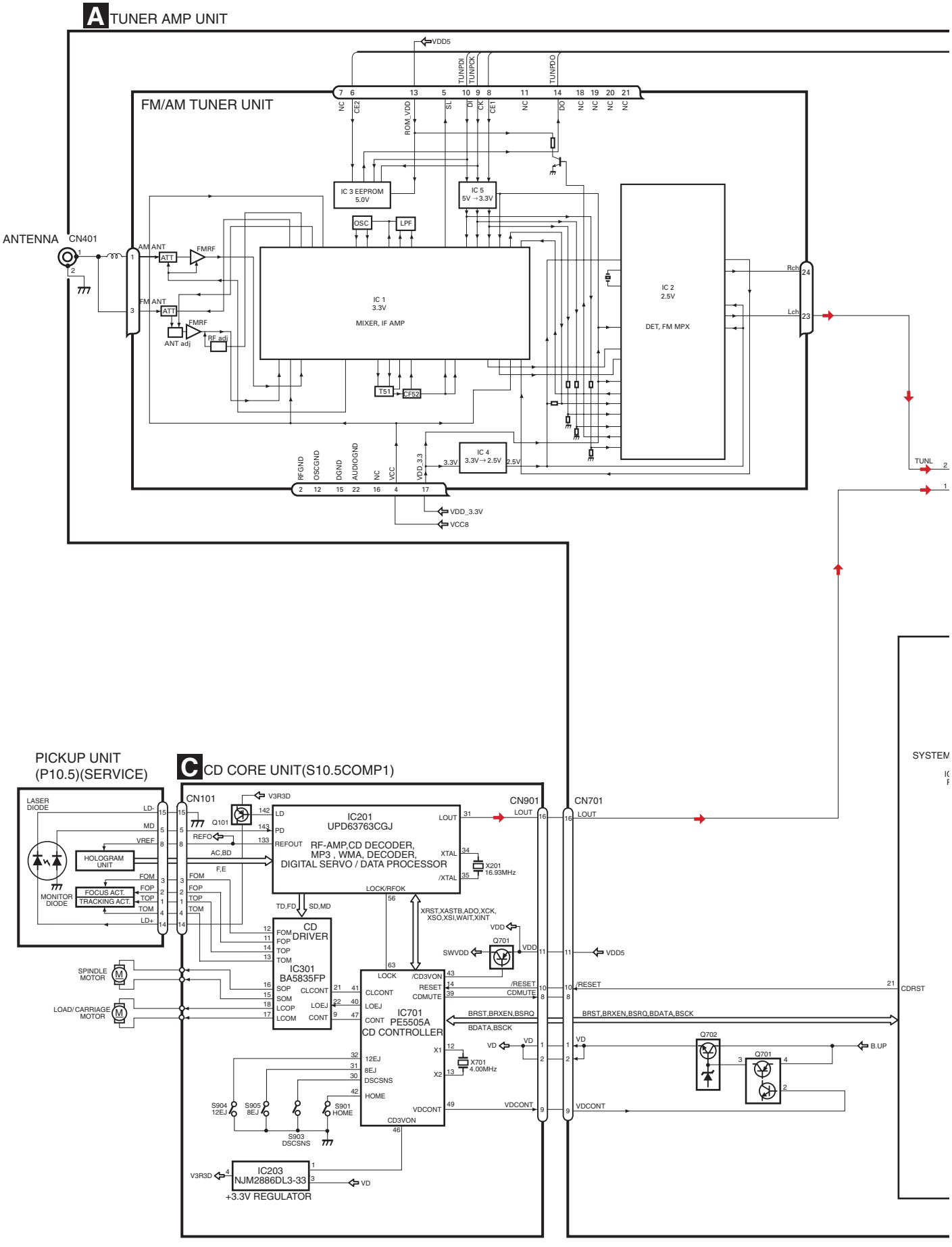


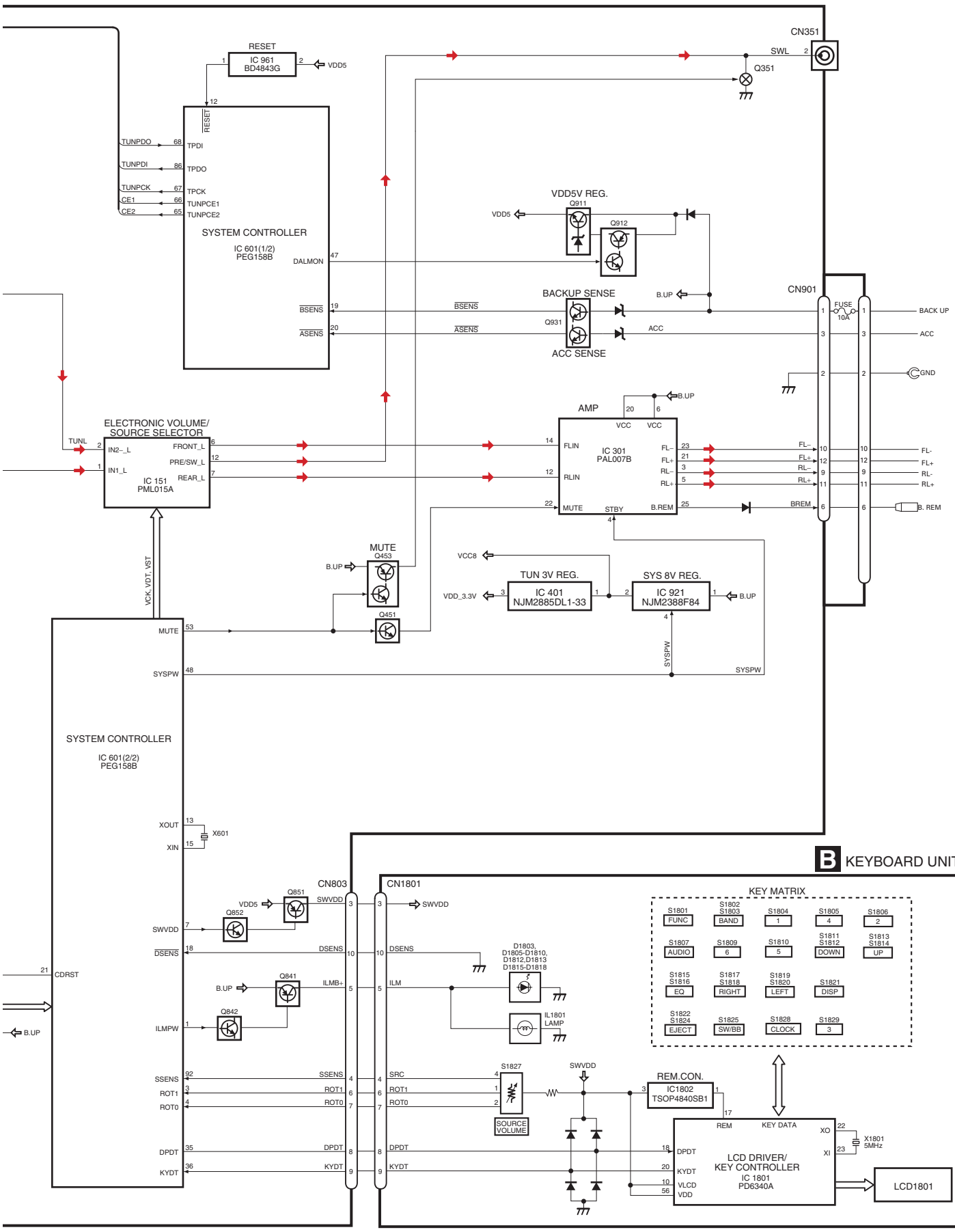
CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	CD Core Unit(S10.5COMP1)	CWX3176
	2	Connector(CN101)	CKS4808
	3	Connector(CN901)	CKS5284
	4	Screw	BMZ20P025FTC
	5	Screw	BSZ20P040FTC
	6	Screw(M2 x 3)	CBA1511
	7	Screw(M2 x 4)	CBA1835
	8	Washer	CBF1038
	9	•••••	
	10	Spring	CBH2609
	11	Spring	CBH2612
	12	Spring	CBH2614
	13	Spring	CBH2616
	14	Spring	CBH2617
	15	Spring	CBH2620
	16	Spring	CBH2855
	17	Spring	CBH2937
	18	Spring	CBH2735
	19	Spring	CBH2854
	20	Spring	CBH2642
	21	Spring	CBH2856
	22	Spring	CBH2857
	23	Spring	CBH2860
	24	Spring	CBH2861
	25	Spring	CBL1686
	26	Arm	CND1909
	27	Frame	CND2582
	28	Bracket	CND2583
	29	Arm	CND2584
	30	Lever	CND2585
	31	Arm	CND2586
	32	Bracket	CND2587
	33	Arm	CND2588
	34	Lever	CND2589
	35	Holder	CNV7201
	36	Gear	CNV7207
	37	Gear	CNV7208
	38	Gear	CNV7209
	39	Gear	CNV7210
	40	Gear	CNV7211
	41	Gear	CNV7212
	42	Rack	CNV7214
	43	Arm	CNV7216
	44	Roller	CNV8189
	45	Gear	CNV7219
	46	Guide	CNV7361
	47	Gear	CNV7595
	48	Guide	CNV8448
	49	Arm	CNV7805
	50	Rack	CNV8342
	51	Roller	CNV8343
	52	Holder	CNV8344
	53	Arm	CNV8345
	54	Guide	CNV8347
	55	Arm	CNV8348
	56	Arm	CNV8349
	57	Arm	CNV8350
	58	Clamper	CNV8365
	59	Arm	CNV8386
	60	Guide	CNV8396
	61	Arm	CNV8413
	62	Collar	CNV8447
	63	Motor Unit(M2)	CXC4026
	64	Arm Unit	CXC4027
	65	Chassis Unit	CXC4028
	66	Gear Unit	CXC4029
	67	Frame Unit	CXC4031
	68	Motor Unit(M1)	CXC6742
	69	Screw Unit	CXC6359
	70	Screw	JFZ20P020FTC
	71	Screw	JGZ17P022FTC
	72	Washer	YE20FTC
	73	Pickup Unit(P10.5)(Service)	CXX1942
	74	Screw	IMS26P030FTC

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

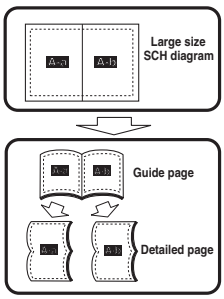
3.1 BLOCK DIAGRAM



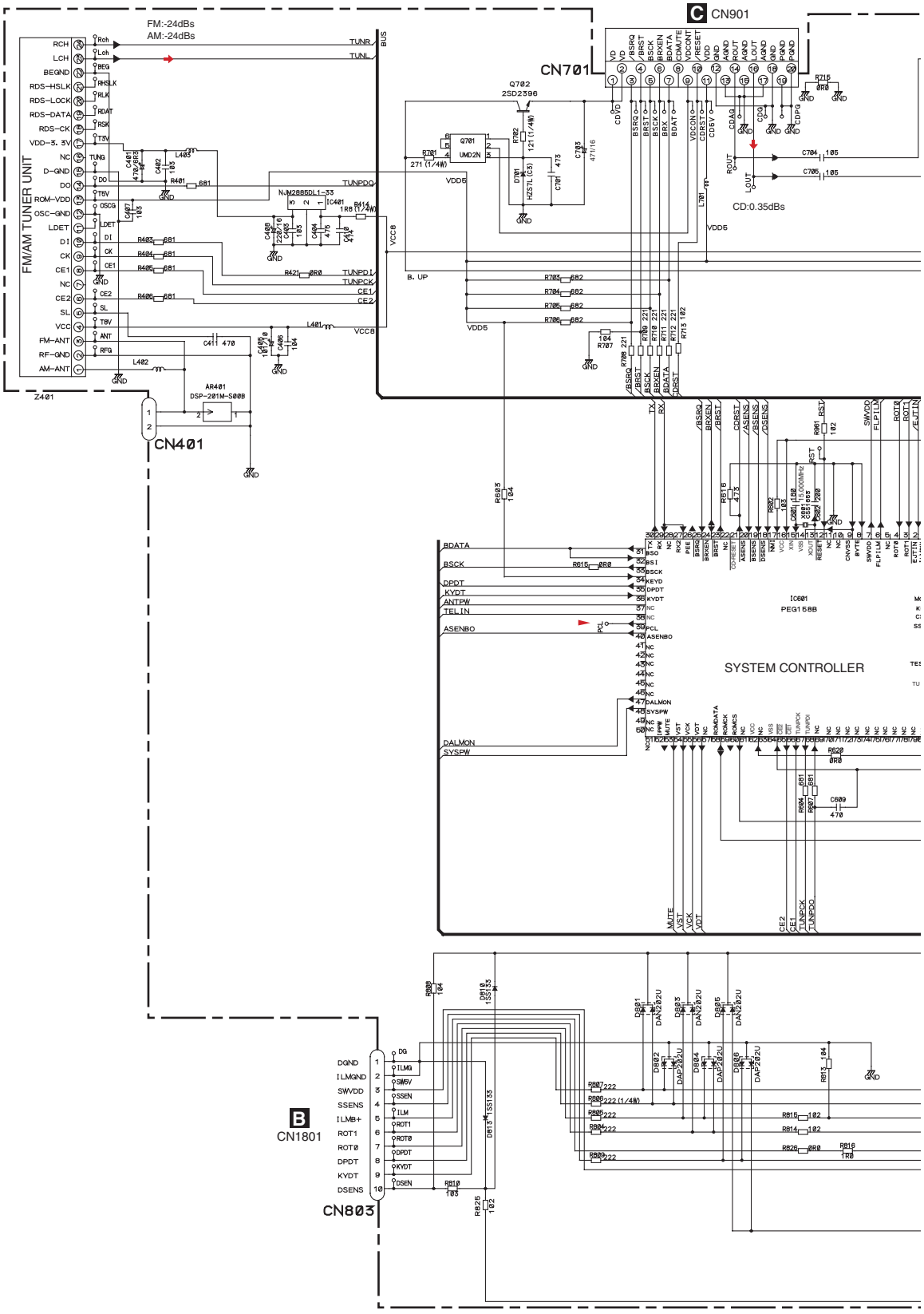

RESET
IC 961
BD4843G
VDD5
CN351
SWL
Q351
SYSTEM CONTROLLER
IC 601(1/2)
PEG158B
TUNPDO
TUNPDI
TUNPCK
CE1
CE2
TPDI
TPDO
TPCK
TUNPCE1
TUNPCE2
DALMON
VDD5V REG.
Q911
Q912
BACKUP SENSE
Q931
ACC SENSE
B.UP
BSENS
ASENS
ACC
CN901
FUSE
10A
BACK UP
GND
ELECTRONIC VOLUME/
SOURCE SELECTOR
IC 151
PML015A
TUNL
IN2-_L
IN1_L
FRONT_L
PRE/SW_L
REAR_L
AMP
IC 301
PAL007B
FLIN
RLIN
MUTE
STBY
B.REM
FL-
FL+
RL-
RL+
BREM
B. REM
MUTE
Q453
Q451
VCC8
TUN 3V REG.
IC 401
NJM2885DL1-33
VDD_3.3V
SYS 8V REG.
IC 921
NJM2388F84
VCK, VDT, VST
SYSPW
SYSTEM CONTROLLER
IC 601(2/2)
PEG158B
XOUT
XIN
X601
CDRST
ILMPW
SSENS
ROT1
ROT0
DPDT
KYDT
CN803
CN1801
Q851
Q852
Q841
Q842
DSENS
ILM
ILMB+
D1803,
D1805-D1810,
D1812,D1813
D1815-D1818
IL1801
LAMP
S1827
SOURCE
VOLUME
SRC
REM.CON.
IC1802
TSOP4840SB1
REM
KEY DATA
LCD DRIVER/
KEY CONTROLLER
IC 1801
PD6340A
VLCD
VDD
XO
XI
X1801
5MHz
LCD1801
B KEYBOARD UNIT
KEY MATRIX
S1801 FUNC
S1802 S1803 BAND
S1804 1
S1805 4
S1806 2
S1807 AUDIO
S1809 6
S1810 5
S1811 S1812 DOWN
S1813 S1814 UP
S1815 S1816 EQ
S1817 S1818 RIGHT
S1819 S1820 LEFT
S1821 DISP
S1822 S1824 EJECT
S1825 SW/BB
S1828 CLOCK
S1829 3

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



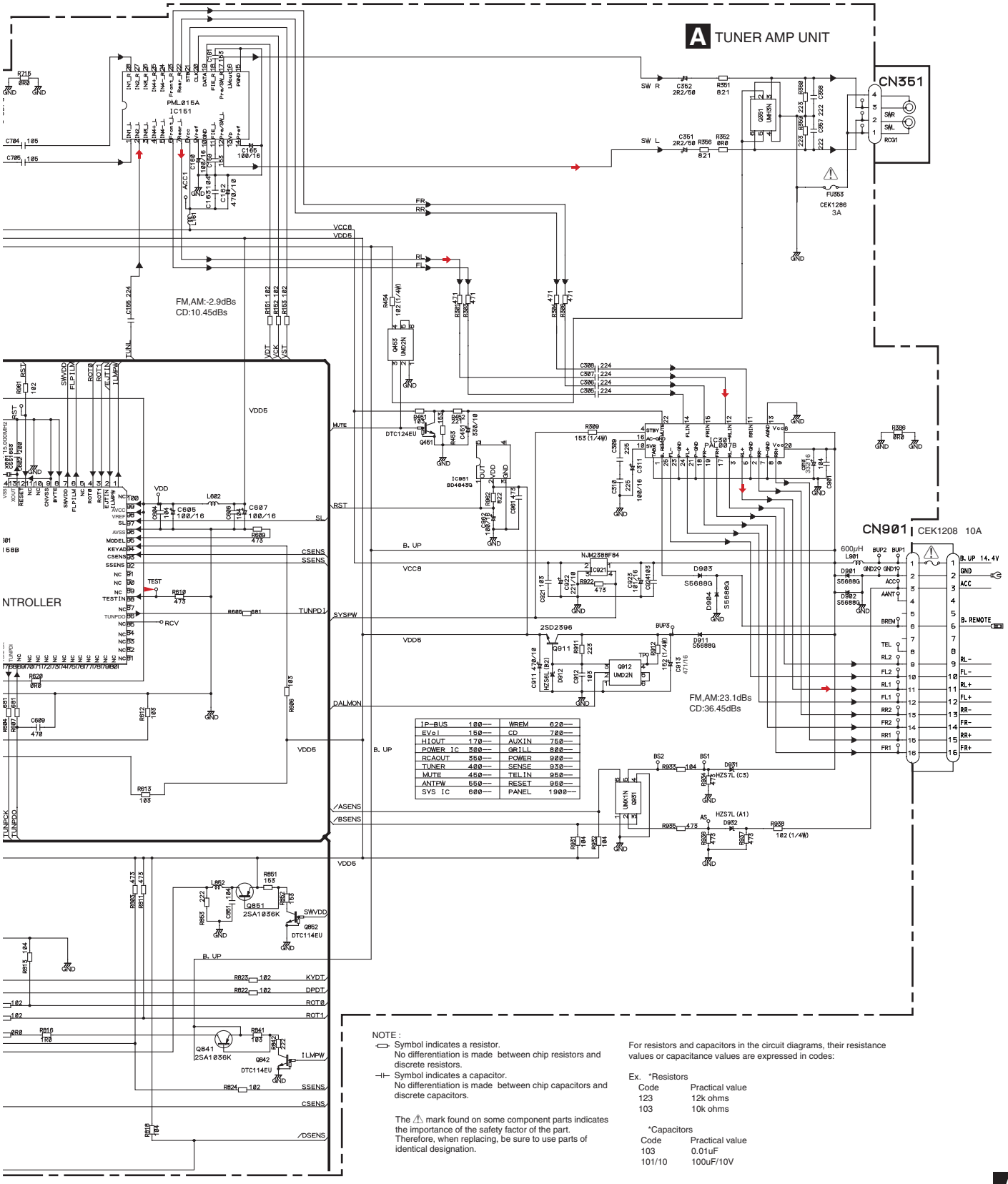
A-a



A

A-b

A TUNER AMP UNIT



NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

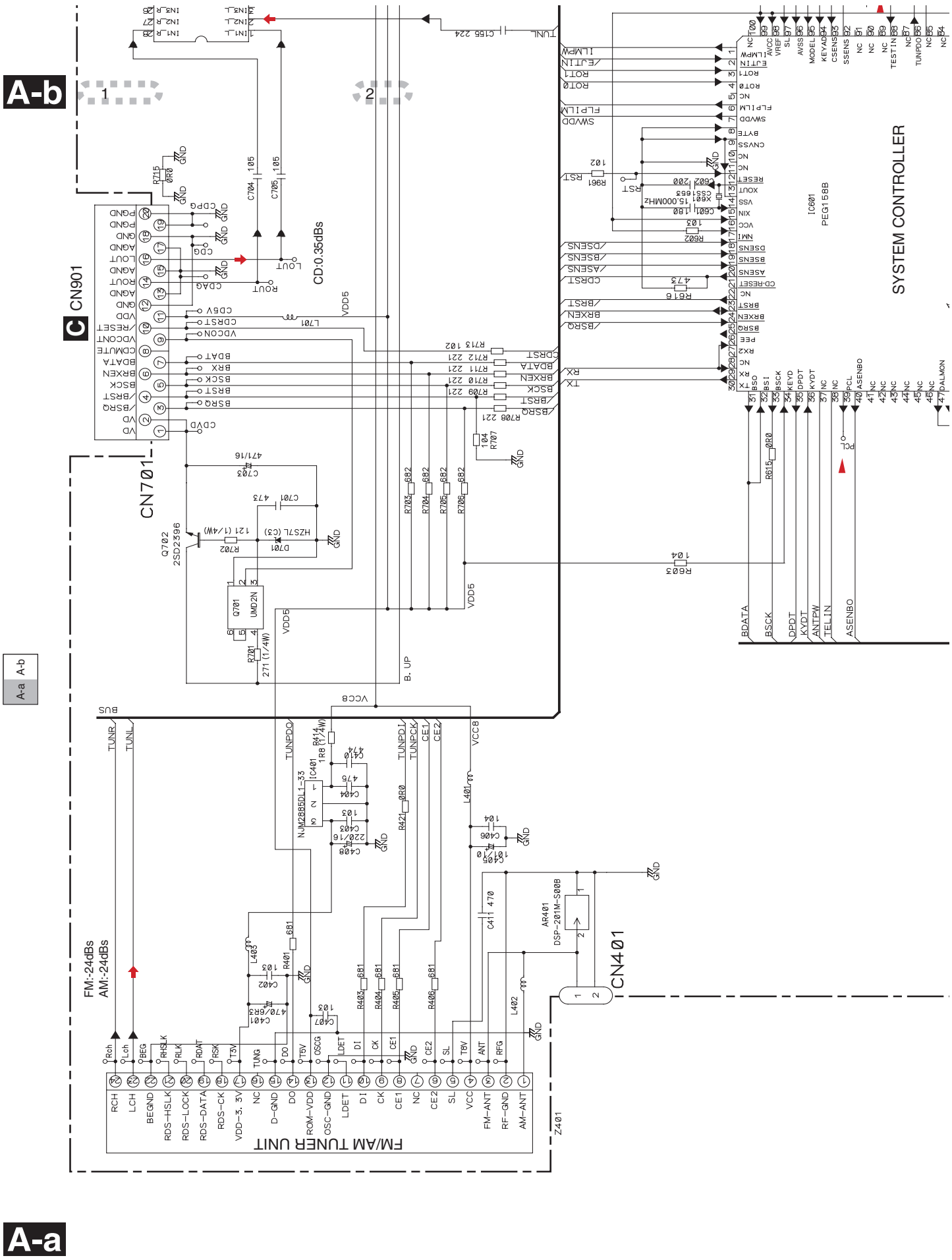
For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

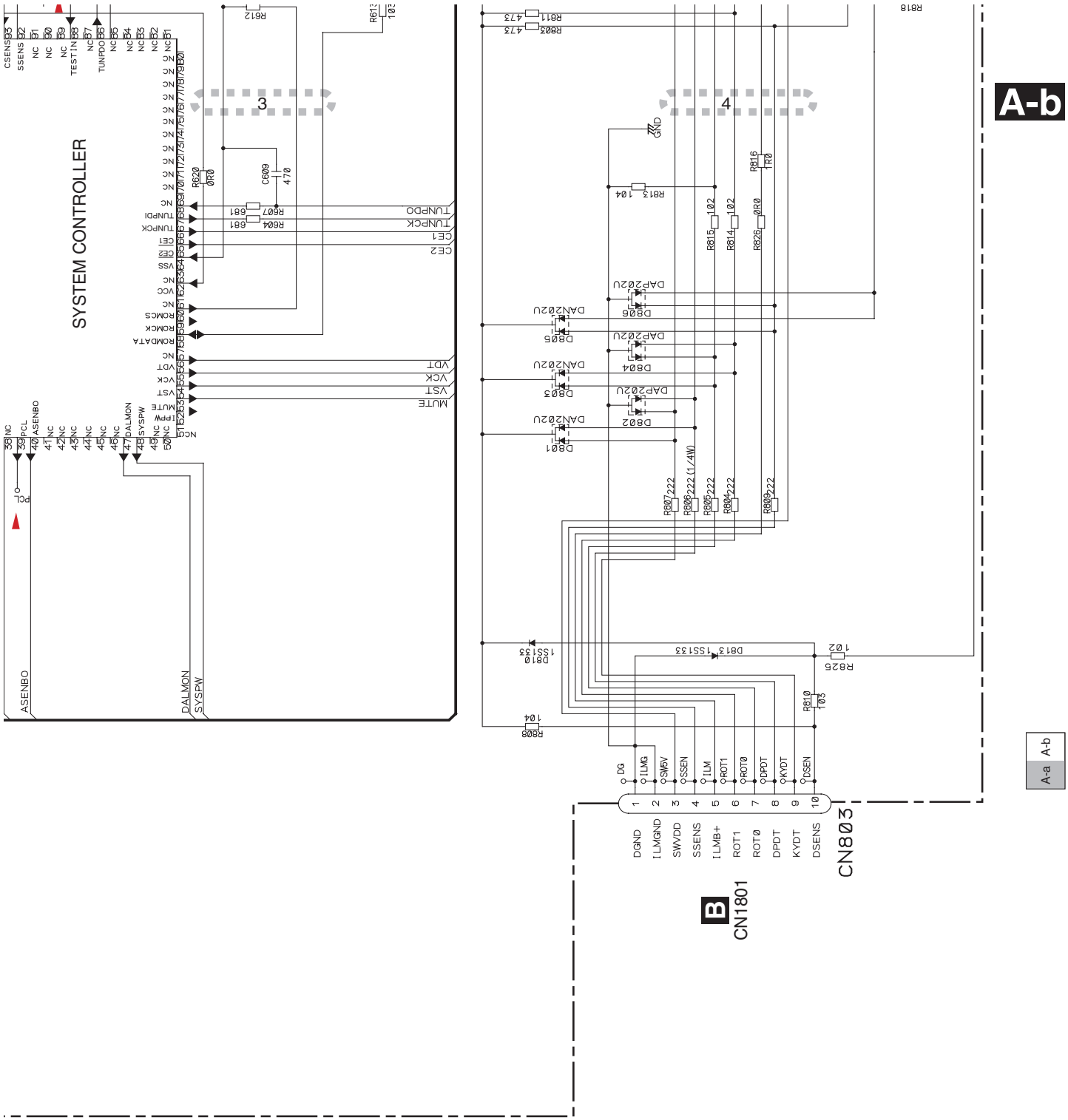
Ex. *Resistors

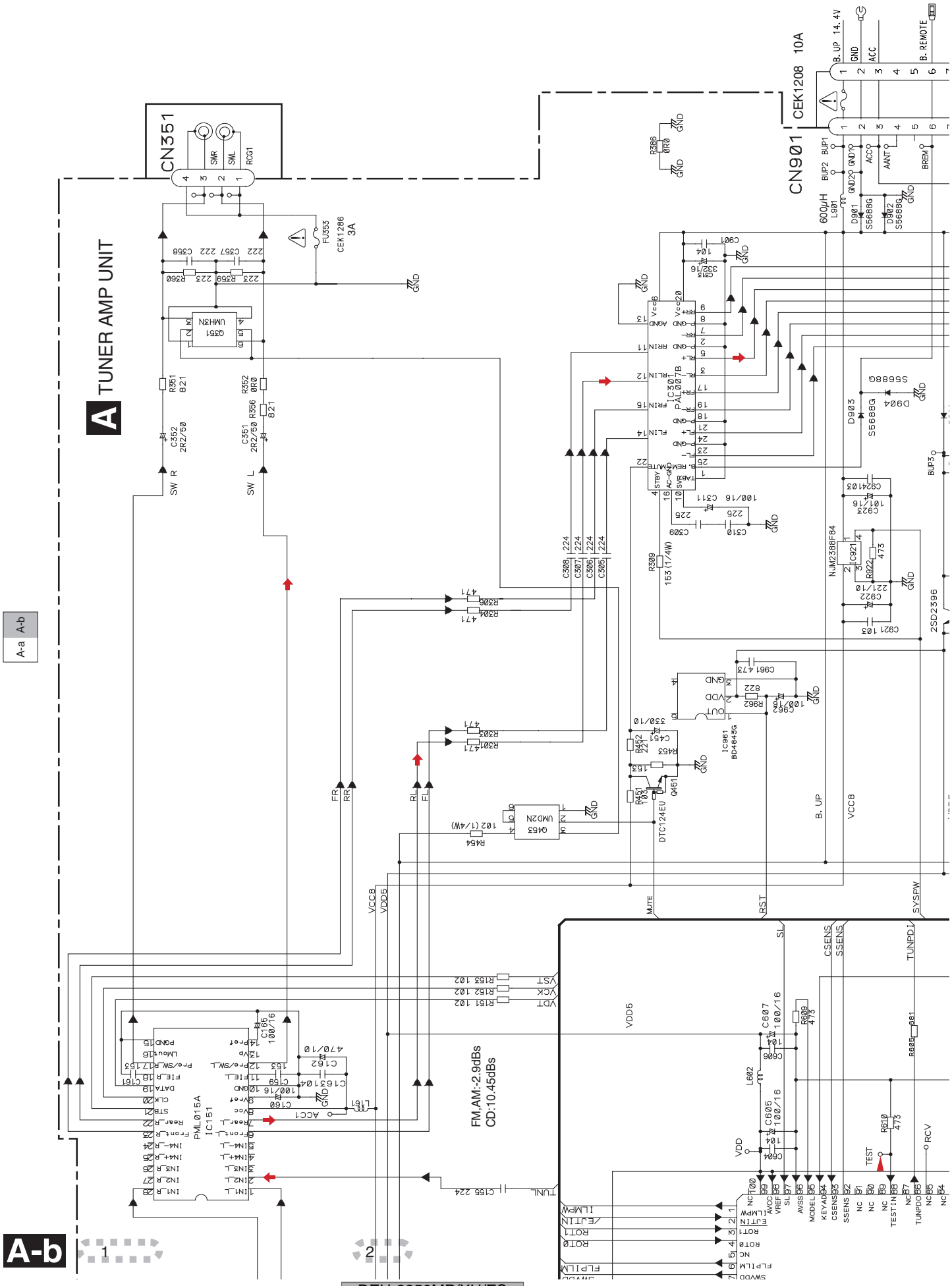
Code	Practical value
123	12k ohms
103	10k ohms

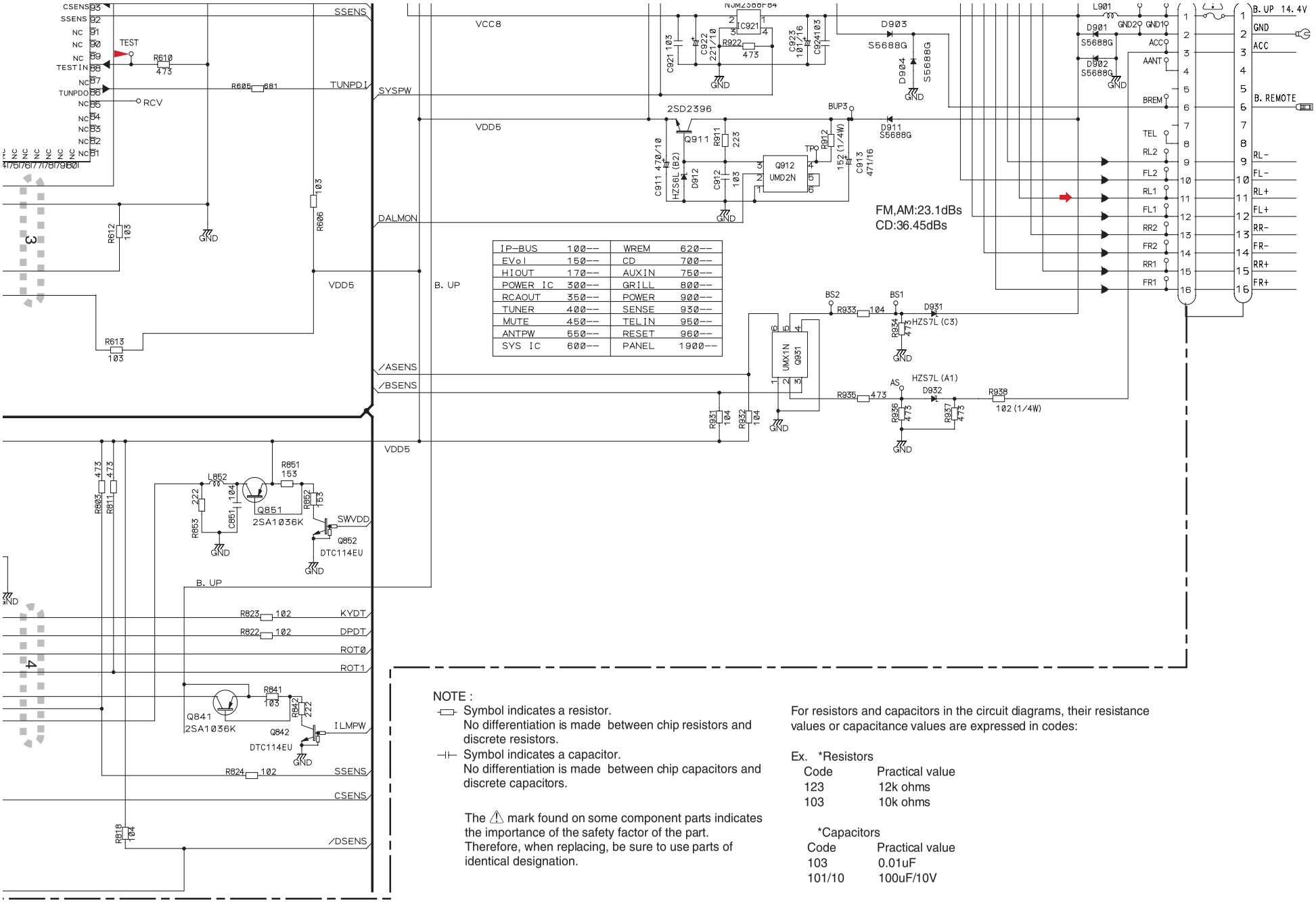
*Capacitors

Code	Practical value
103	0.01uF
101/10	100uF/10V


A-b
A-a
SYSTEM CONTROLLER
IC601
PEG158B
CN901
CN701
CN401
FM/AM TUNER UNIT
Z401
CD:0.35dBs
FM:-24dBs
AM:-24dBs
B. UP
BUS
VDD5
VCC8
BDATA
BSCK
DPDT
KYDT
ANTPW
TELIN
ASENBO


SYSTEM CONTROLLER
CN1801
CN803
A-b
A-a
DGND
ILMGND
SWVDD
SSENS
ILMB+
ROT1
ROT0
DPDT
KYDT
DSENS
ASENBO
DALMON
SYSPW
TUNPDO
TUNPCK
TUNPDI
VDT
VCK
VST
MUTE
ROMDATA
ROMCK
ROMCS
CE1
CE2
GND


A TUNER AMP UNIT
CN351
CN901
CEK1208 10A
B. UP 14. 4V
GND
ACC
B. REMOTE
SWR
SWL
RCG1
FU353
CEK1286 3A
600μH
L901
D901 S5688G
D902 S5688G
D903 S5688G
D904 S5688G
BUP1
BUP2
BUP3
GND1
GND2
ACC
AANT
BREM
Q351 UMH3N
R351 821
R352 0R0
R356 821
C351 2R2/50
C352 2R2/50
C357 222
C358 222
R359 223
R360 223
SW R
SW L
IC301 PAL007B
Vcc6
Vcc20
AGND
RRIN
RLIN
FRIN
FLIN
REMOTE
STBY
AC-GND
SVR
TAB
C309 225
C310 225
C311 100/16
C308 224
C307 224
C306 224
C305 224
R309 153 (1/4W)
R306 471
R304 471
R303 471
R301 471
C2403 103
C923 101/16
C922 221/10
C921 103
R922 473
NJM2388FB4
C961 473
R962 822
C962 100/16
IC961 BD4843G
C453 330/10
R452 2.2k
R453 153
R451 103
Q451 DTC124EU
R454 102 (1/4W)
Q453 UMD2N
B. UP
VCC8
VDD5
MUTE
RST
SYSPW
SL
CSENS
SSENS
TUNPD1
VST
VCK
VDT
R153 102
R152 102
R151 102
C607 100/16
C606 104
C605 100/16
C604 104
R609 473
R605 681
R610 473
L602
VDD
TEST
RCV
TUNL
C155 224
C165 100/16
C162 470/10
C159 104
C160 100/16
C161 104
L161
ACC1
IC151 PML016A
FM,AM:-2.9dBs
CD:10.45dBs
NC
AVCC
VREF
AVSS
MODEL
KEYAD
CSENS
SSENS
TESTIN
TUNPDO
ILMPW
FJTIN
ROT1
ROT0
FLPILM
SWVDD
A-a
A-b
A-b
1
2



IP-BUS	100--	WREM	620--
EVol	150--	CD	700--
HIOUT	170--	AUXIN	750--
POWER IC	300--	GRILL	800--
RCAOUT	350--	POWER	900--
TUNER	400--	SENSE	930--
MUTE	450--	TELIN	950--
ANTPW	550--	RESET	960--
SYS IC	600--	PANEL	1900--

NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

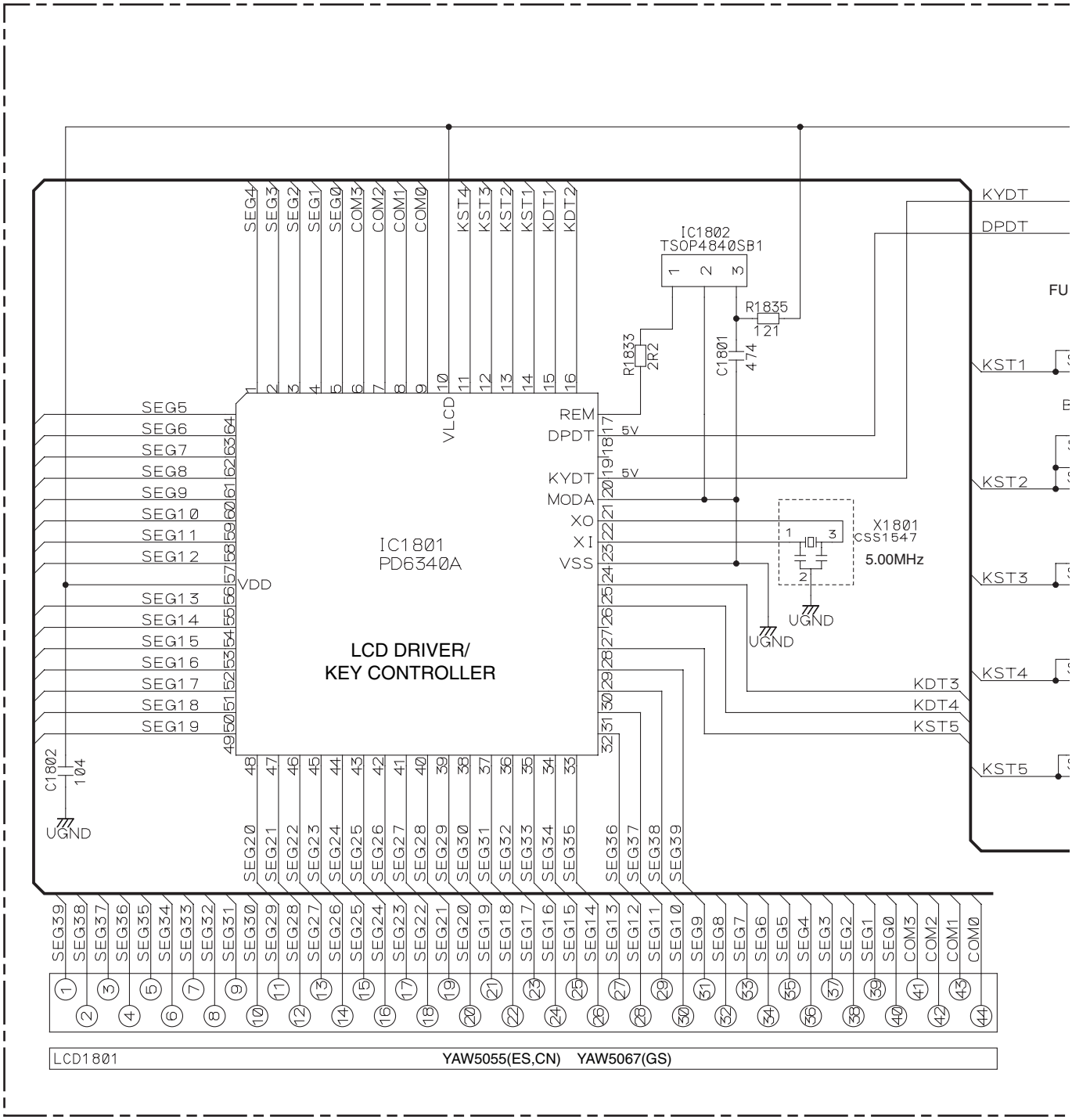
Ex. *Resistors

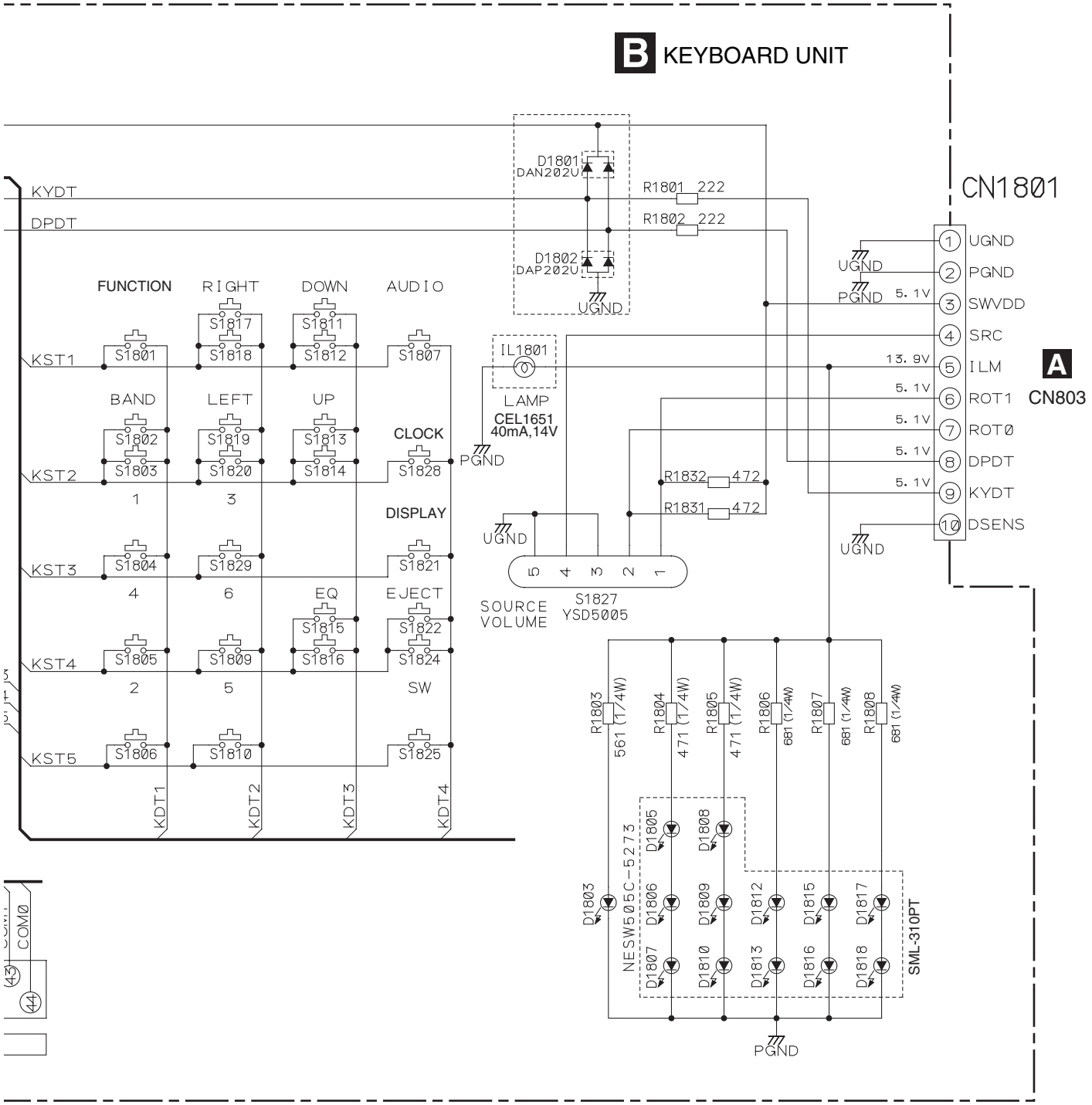
Code	Practical value
123	12k ohms
103	10k ohms

*Capacitors

Code	Practical value
103	0.01uF
101/10	100uF/10V

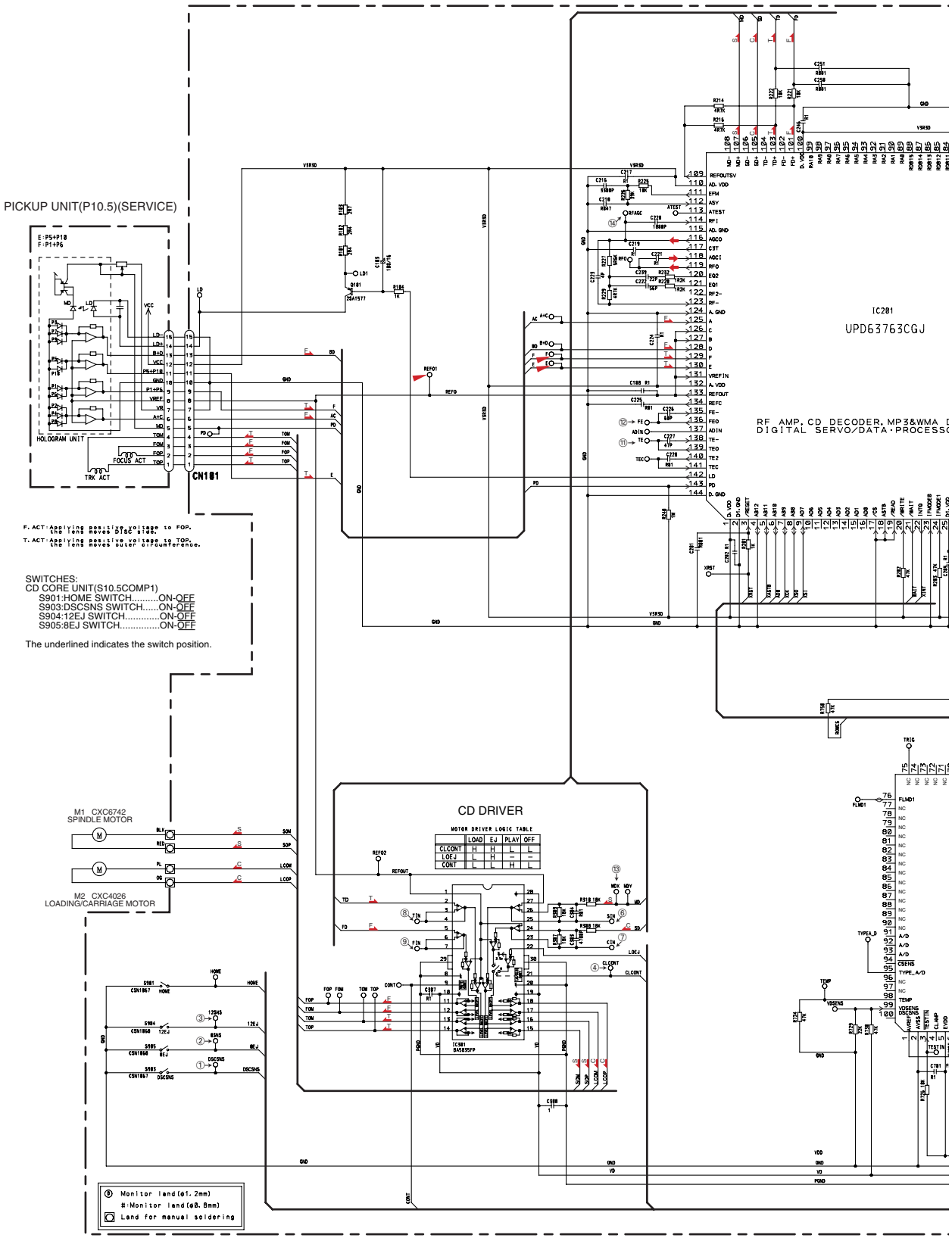
3.3 KEYBOARD UNIT



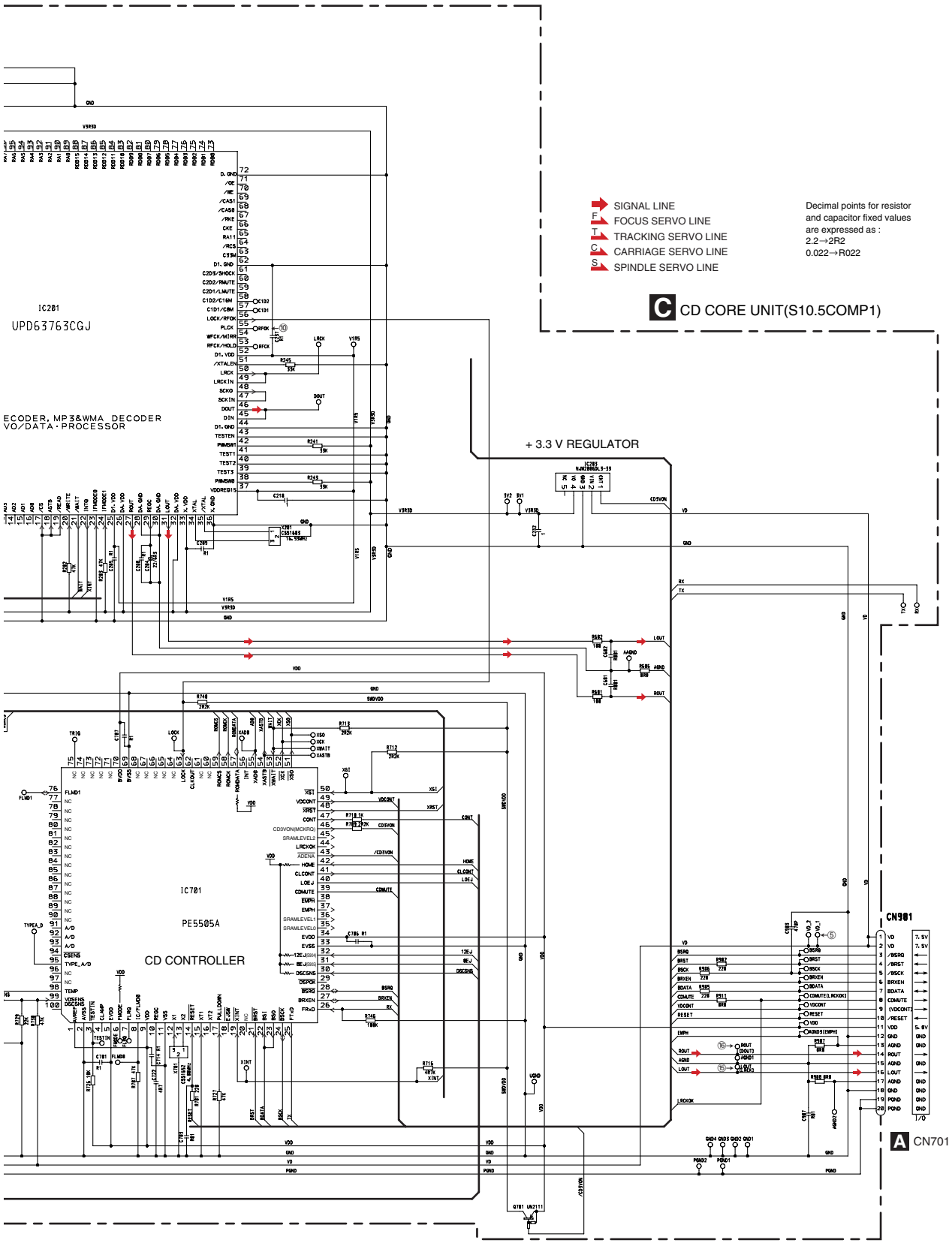

B KEYBOARD UNIT
CN1801
CN803
A
KYDT
DPDT
D1801 DAN202U
D1802 DAP202U
R1801 222
R1802 222
UGND
PGND
5.1V
13.9V
SWVDD
SRC
ILM
ROT1
ROT0
DPDT
KYDT
DSENS
IL1801
LAMP
CEL1651
40mA,14V
R1832 472
R1831 472
S1827
YSD5005
SOURCE
VOLUME
FUNCTION
RIGHT
DOWN
AUDIO
BAND
LEFT
UP
CLOCK
DISPLAY
EQ
EJECT
SW
KST1
KST2
KST3
KST4
KST5
KDT1
KDT2
KDT3
KDT4
R1803 561 (1/4W)
R1804 471 (1/4W)
R1805 471 (1/4W)
R1806 681 (1/4W)
R1807 681 (1/4W)
R1808 681 (1/4W)
NESW505C-5273
SML-310PT
COM0

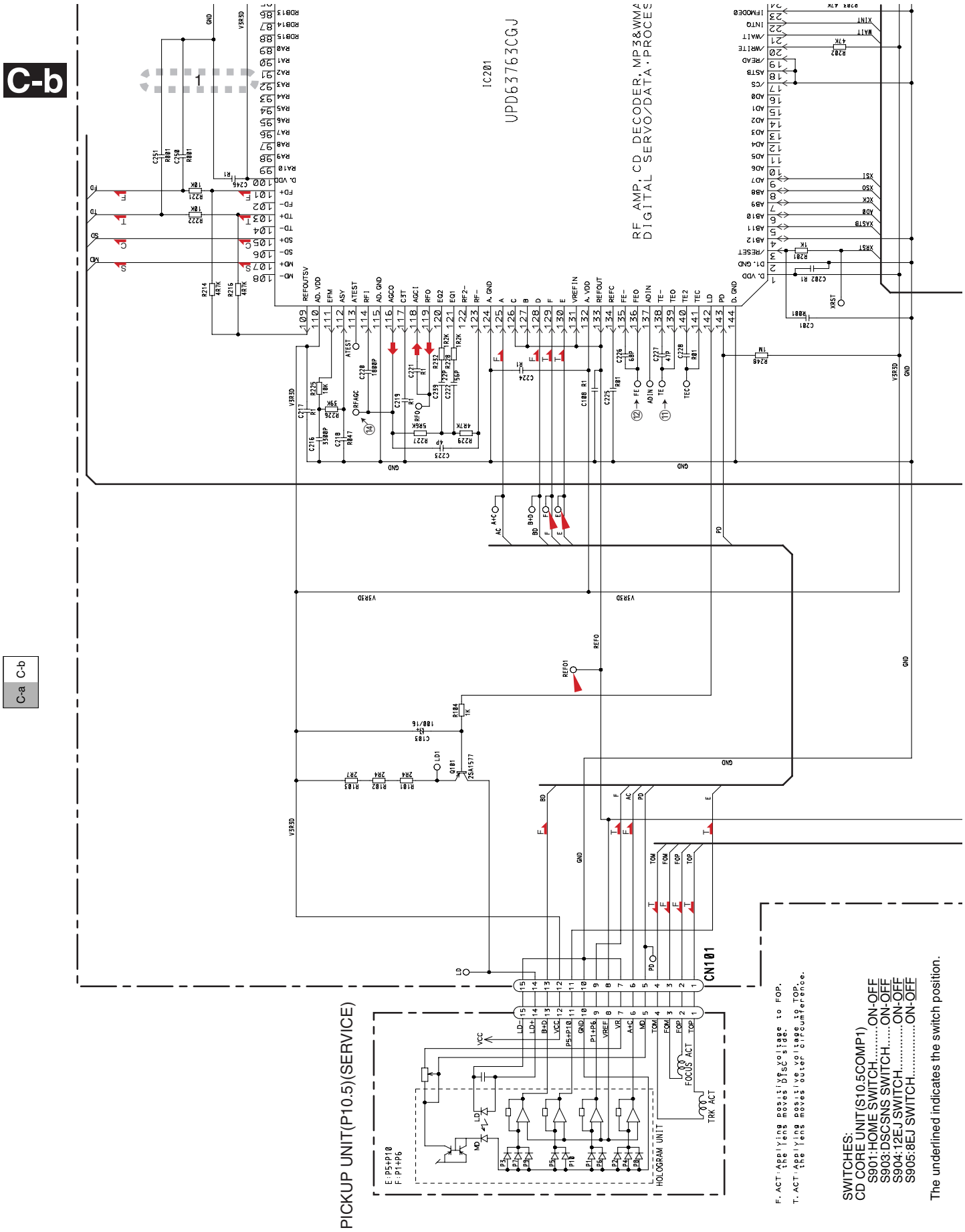
3.4 CD MECHANISM MODULE(GUIDE PAGE)

C-a



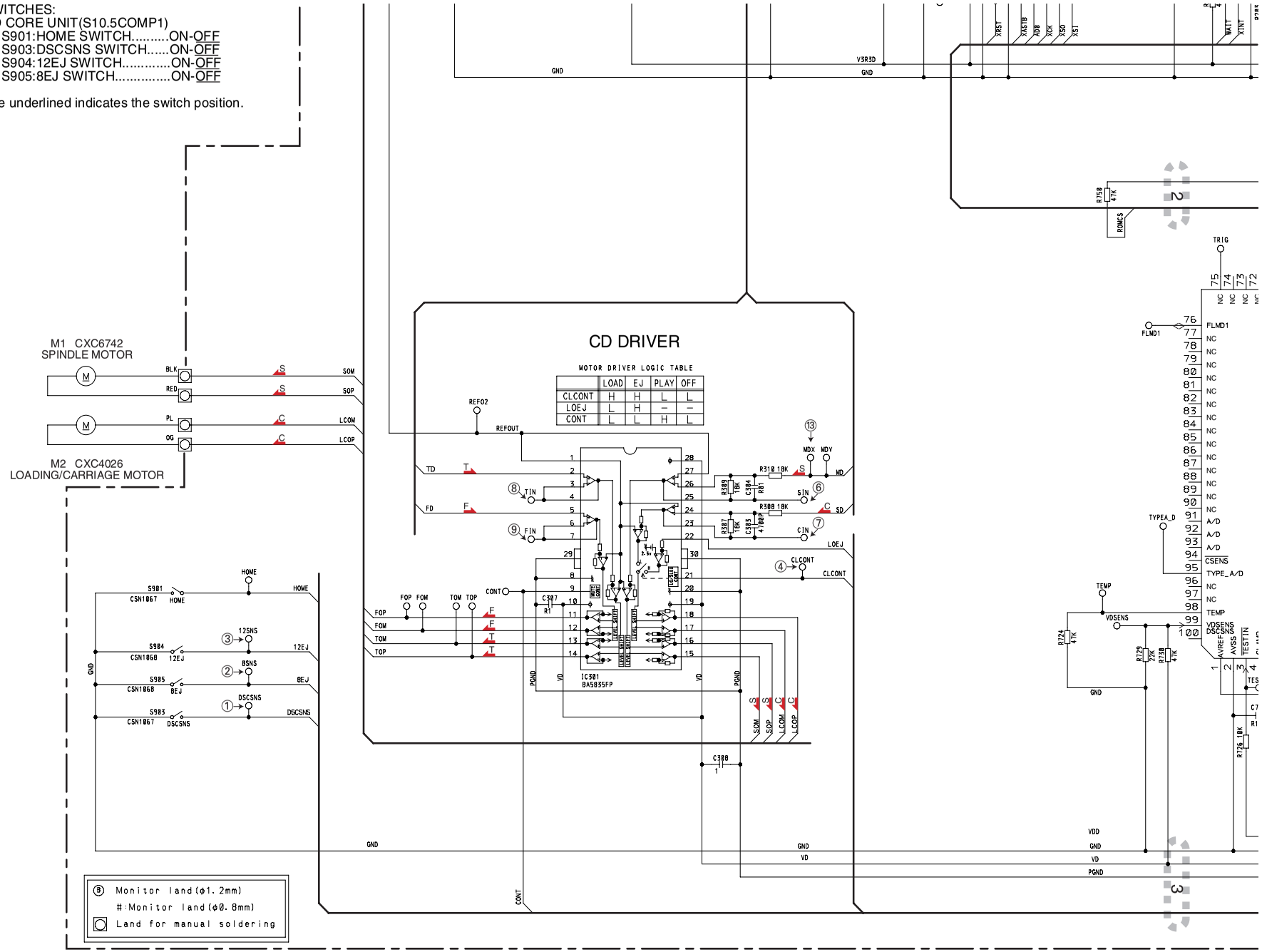
C


SIGNAL LINE
F FOCUS SERVO LINE
T TRACKING SERVO LINE
C CARRIAGE SERVO LINE
S SPINDLE SERVO LINE
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022
C CD CORE UNIT(S10.5COMP1)
IC201
UPD63763CGJ
ECODER, MP3&WMA DECODER
VO/DATA·PROCESSOR
+ 3.3 V REGULATOR
IC701
PE5505A
CD CONTROLLER
CN901
A CN701


C-b
C-a
C-b
C-a
IC201
UPD63763CGJ
RF AMP, CD DECODER, MP3&WMA
DIGITAL SERVO/DATA PROCES
CN101
PICKUP UNIT(P10.5)(SERVICE)
E:P5+P10
F:P1+P6
HOLOGRAM UNIT
F. ACT Applying positive voltage to FOP.
the lens moves DISC side.
T. ACT Applying positive voltage to TOP.
the lens moves outer circumference.
SWITCHES:
CD CORE UNIT(S10.5COMP1)
S901:HOME SWITCH.....ON-OFF
S903:DSC/SNS SWITCH.....ON-OFF
S904:12EJ SWITCH.....ON-OFF
S905:8EJ SWITCH.....ON-OFF
The underlined indicates the switch position.

SWITCHES:
CD CORE UNIT(S10.5COMP1)
S901:HOME SWITCH.....ON-OFF
S903:DSCSNS SWITCH.....ON-OFF
S904:12EJ SWITCH.....ON-OFF
S905:8EJ SWITCH.....ON-OFF

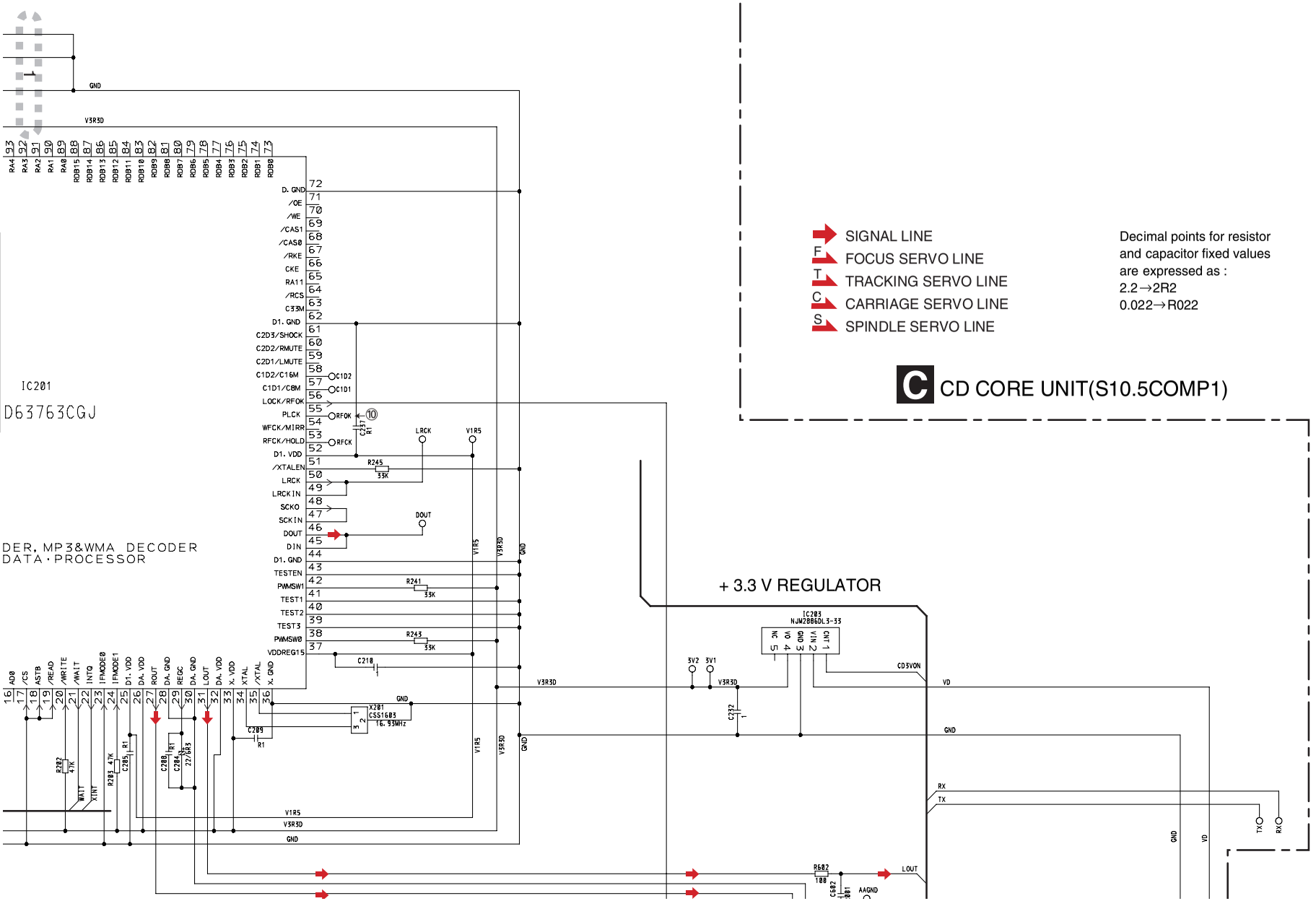
The underlined indicates the switch position.

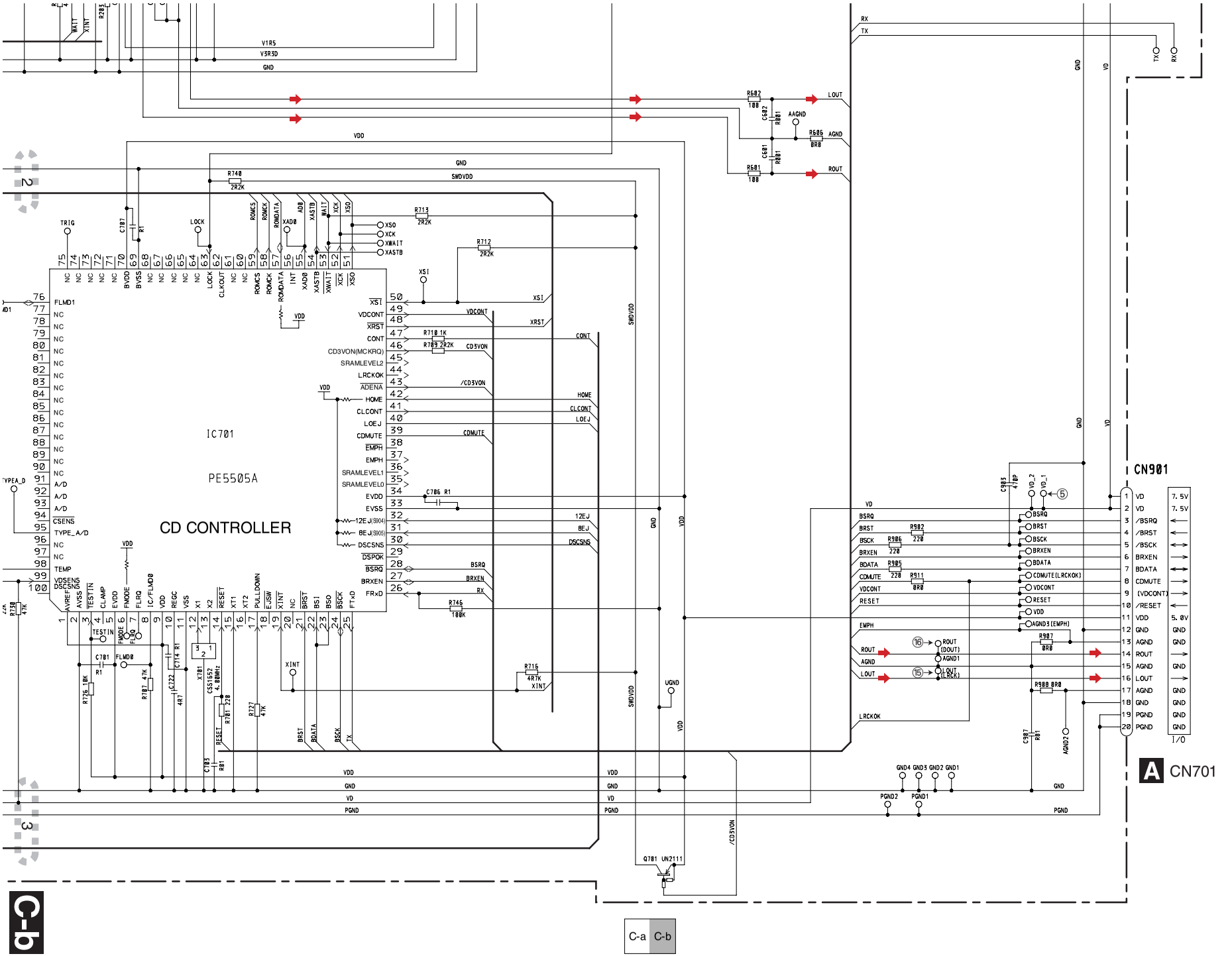


C-a C-b

C-a

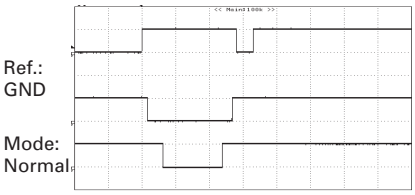
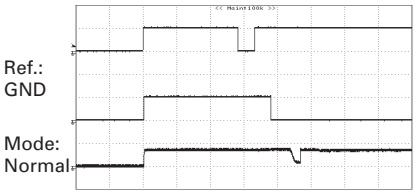
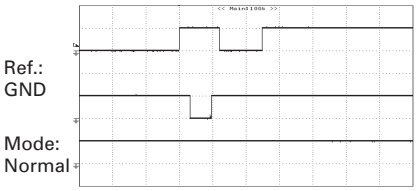
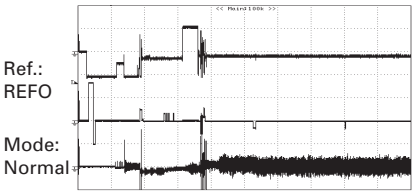
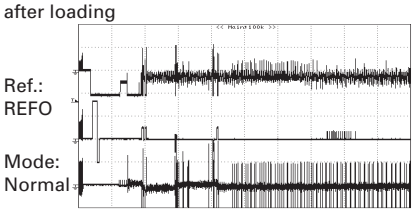
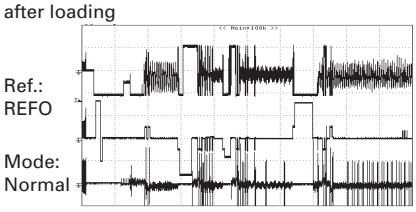
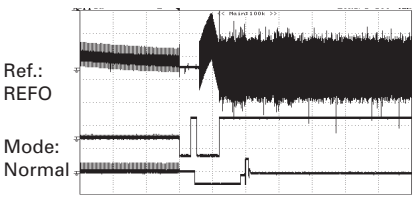
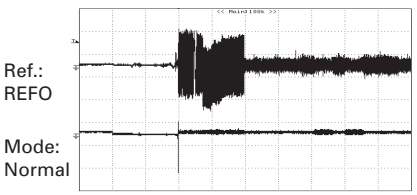
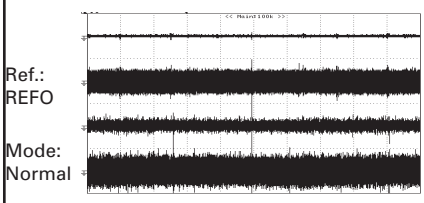
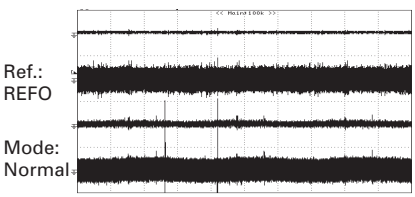
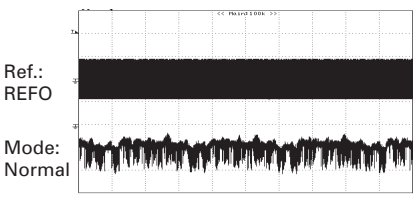
C-b


SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022
C CD CORE UNIT(S10.5COMP1)
DEH-3850MP/XU/ES
IC201
D63763CGJ
DER, MP3&WMA DECODER DATA·PROCESSOR
+ 3.3 V REGULATOR
IC203
NJM2886DL3-33
GND
V3R3D
V1R5
LRCK
DOUT
RFOK
RFCK
C1D1
C1D2
C2D3/SHOCK
C2D2/RMUTE
C2D1/LMUTE
C1D2/C16M
C1D1/CBM
LOCK/RFOK
PLCK
WFCK/MIRR
RFCK/HOLD
/XTALEN
LRCKIN
SCKO
SCKIN
DIN
TESTEN
PWMSW1
TEST1
TEST2
TEST3
PWMSW0
VDDREG15
X201
CSS1603
16.93MHz
CD3VON
VD
RX
TX
LOUT
AAGND

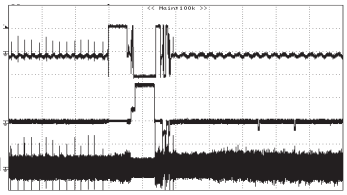
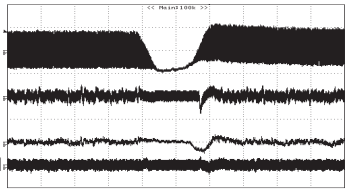

DEH-3850MP/XU/ES
IC701
PE5505A
CD CONTROLLER
CN901
CN701
C-b
C-a
C-b

● Waveforms

Note : 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage REFO1(1.65 V)

① DSCSNS 5 V/div 500 ms/div ② 8SNS 5 V/div ③ 12SNS 5 V/div 12 cm CD Loading operation  	① DSCSNS 5 V/div 500 ms/div ④ CLCONT 5 V/div ⑤ VD 10 V/div 12 cm CD Loading operation  	① DSCSNS 5 V/div 500 ms/div ② 8SNS 5 V/div ③ 12SNS 5 V/div 8 cm CD Loading operation 
⑥ SIN 1 V/div 1 s/div ⑦ CIN 500 mV/div ⑧ TIN 500 mV/div 12 cm CD-DA setup operation after loading  	⑥ SIN 1 V/div 1 s/div ⑦ CIN 500 mV/div ⑧ TIN 500 mV/div 12 cm CD-ROM(1 session) setup operation after loading  	⑥ SIN 1 V/div 1 s/div ⑦ CIN 500 mV/div ⑧ TIN 500 mV/div 12 cm CD-ROM(3 sessions) setup operation after loading 
⑨ FIN 200 mV/div 500 ms/div ⑩ RFOK 2 V/div ⑥ SIN 2 V/div 12 cm CD-DA Source On setup operation  	⑪ TE 500 mV/div 200 ms/div ⑫ FE 500 mV/div Source On setup operation  	⑫ FE 500 mV/div 20 ms/div ⑨ FIN 500 mV/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div CD-DA Play operation 
⑫ FE 500 mV/div 20 ms/div ⑨ FIN 500 mV/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div CD-ROM play operation(Regular track Jump)  	⑬ MDX 2 V/div 50 ms/div ⑥ SIN 200 mV/div Spindle waveform during play operation  	⑬ MDX 2 V/div 5 µs/div ⑥ SIN 500 mV/div Spindle waveform during play operation (Wider)

⑨ FIN 500 mV/div 200 ms/div ⑫ FE 500 mV/div Focus Search waveform Ref.: REFO Mode: TEST	⑪ TE 500 mV/div 2 ms/div ⑭ RFAGC 500 mV/div Track Open waveform Ref.: REFO Mode: TEST	⑭ RFAGC 1 V/div 500 µs/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div 1 Track Jump waveform Ref.: REFO Mode: TEST
⑭ RFAGC 1 V/div 500 µs/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div 4 Tracks Jump waveform Ref.: REFO Mode: TEST	⑭ RFAGC 1 V/div 1 ms/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div 10 Tracks Jump waveform Ref.: REFO Mode: TEST	⑭ RFAGC 1 V/div 2 ms/div ⑪ TE 500 mV/div ⑧ TIN 500 mV/div 32 Tracks Jump waveform Ref.: REFO Mode: TEST
⑭ RFAGC 1 V/div 200 ms/div ⑪ TE 1 V/div ⑦ CIN 500 mV/div ⑥ SIN 2 V/div Search operation(Outter to Inner) Ref.: REFO Mode: Normal	⑮ LOUT 1 V/div 200 µs/div ⑯ ROUT 1 V/div Analog audio waveform Ref.: AGND Mode: Normal	① DSCSNS 5 V/div 500 ms/div ② 8SNS 5 V/div ③ 12SNS 5 V/div 12 cm CD Eject operation Ref.: GND Mode: Normal
① DSCSNS 5 V/div 500 ms/div ⑤ CLCONT 5 V/div ④ LOEJ 5 V/div 12 cm CD Eject operation Ref.: GND Mode: Normal	① DSCSNS 5 V/div 500 ms/div ② 8SNS 5 V/div ③ 12SNS 5 V/div 8 cm CD Eject operation Ref.: GND Mode: Normal	⑥ SIN 1 V/div 500 ms/div ⑦ CIN 500 mV/div ⑧ TIN 500 mV/div CD-DA → CD-ROM mode change(Band key) Ref.: REFO Mode: Normal

⑥ SIN 1 V/div 500 ms/div ⑦ CIN 500 mV/div ⑧ TIN 500 mV/div CD-ROM → CD-DA mode change(Band key) Ref.: REFO Mode: Normal 	⑭ RFAGC 1 V/div 500 µs/div ⑧ TIN 1 V/div ⑪ TE 1 V/div ⑨ FIN 1 V/div Black dot(800 µm) during play Ref.: REFO Mode: Normal 	

A

B

C

D

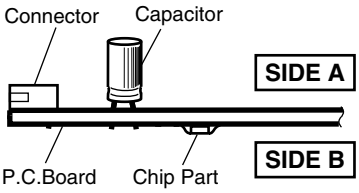
E

F

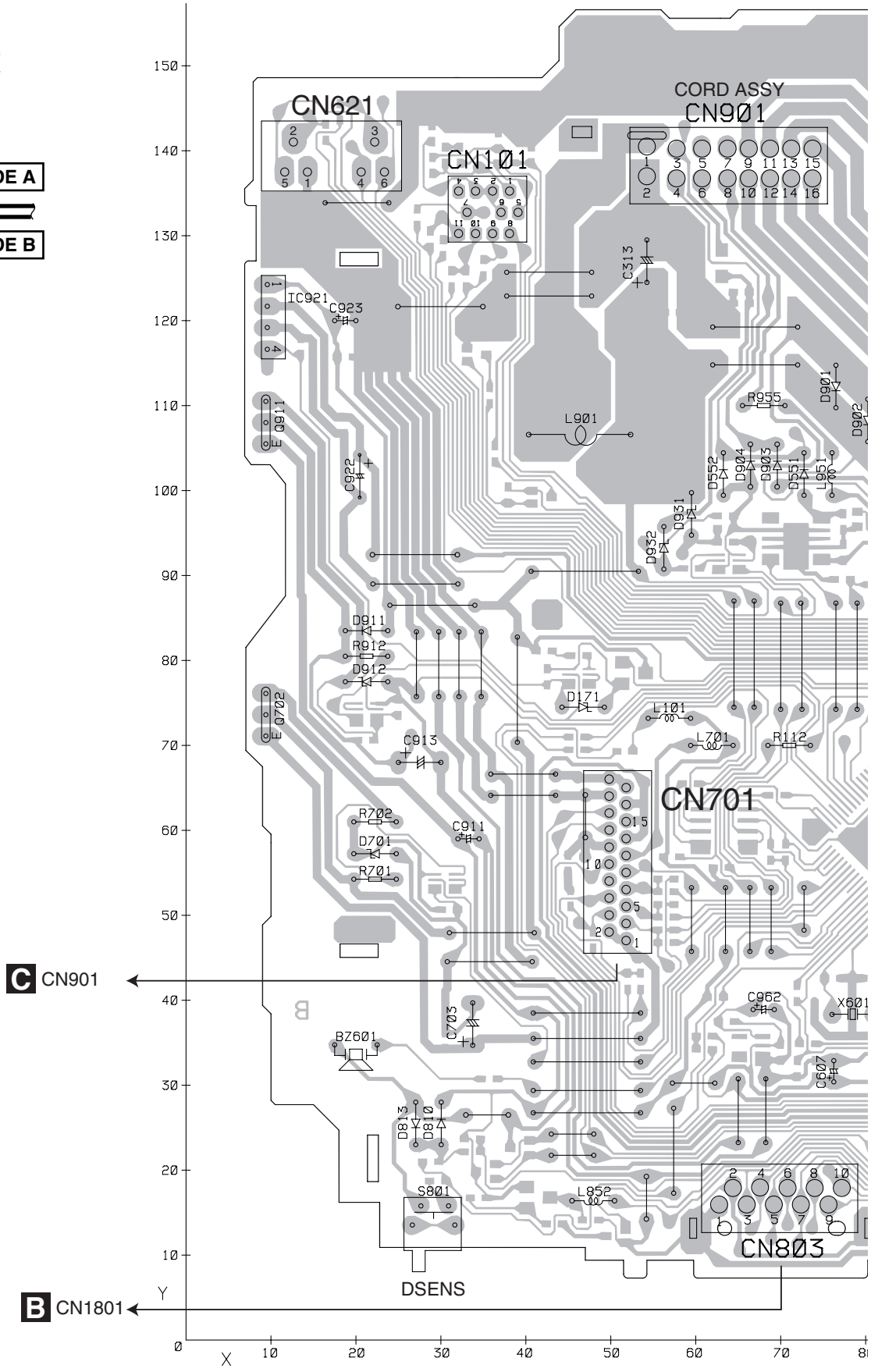
4. PCB CONNECTION DIAGRAM
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination. For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

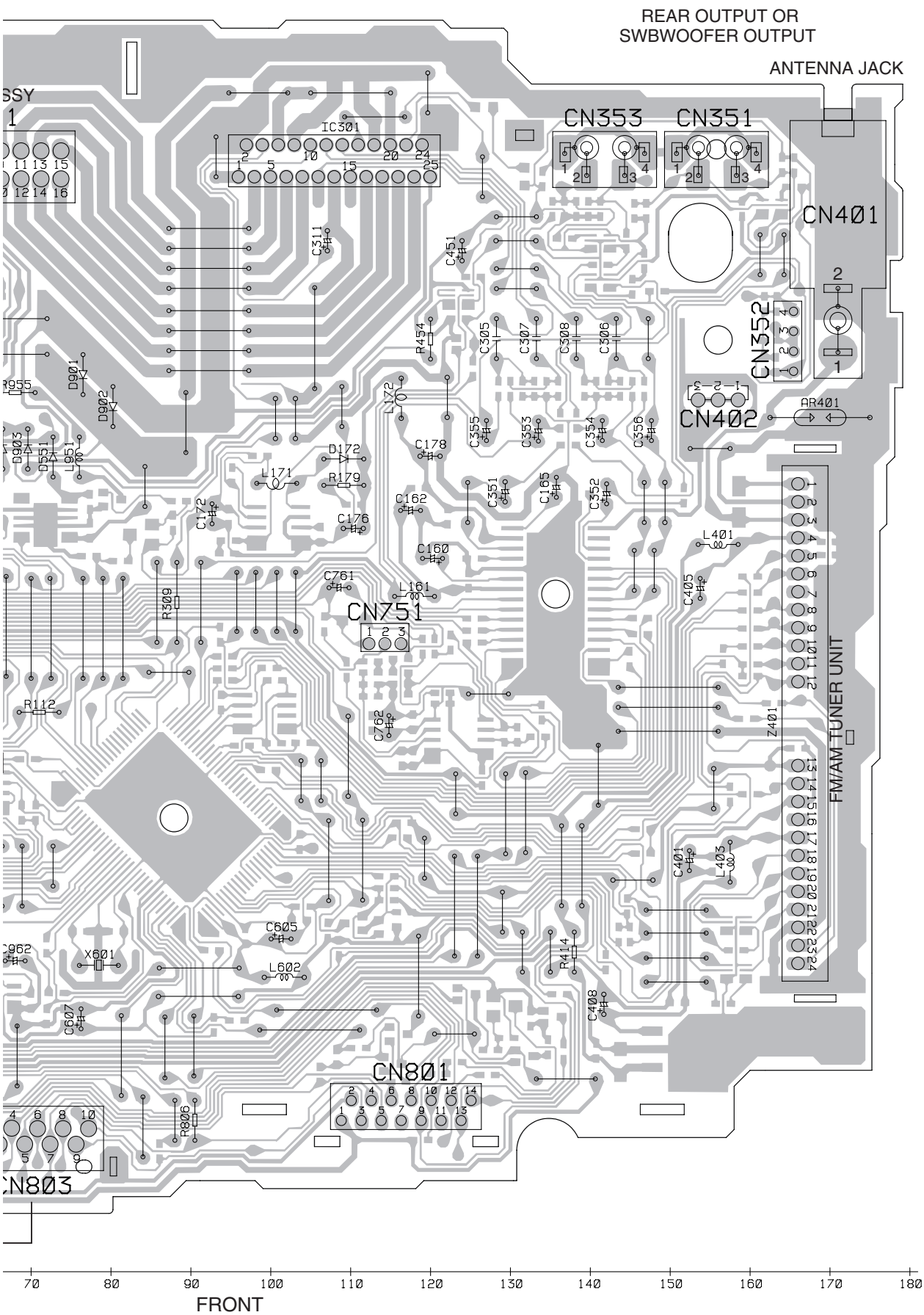


A TUNER AMP UNIT

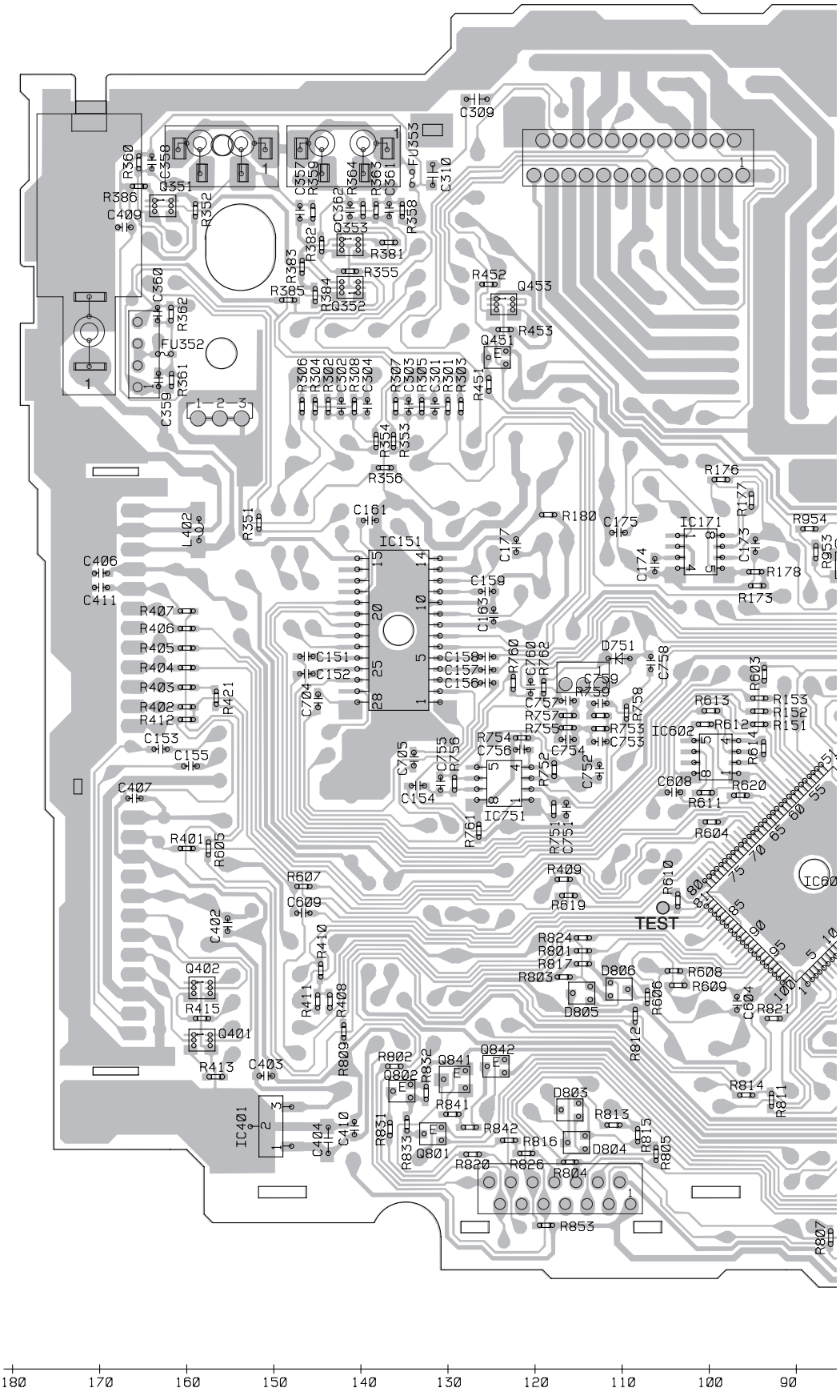


A

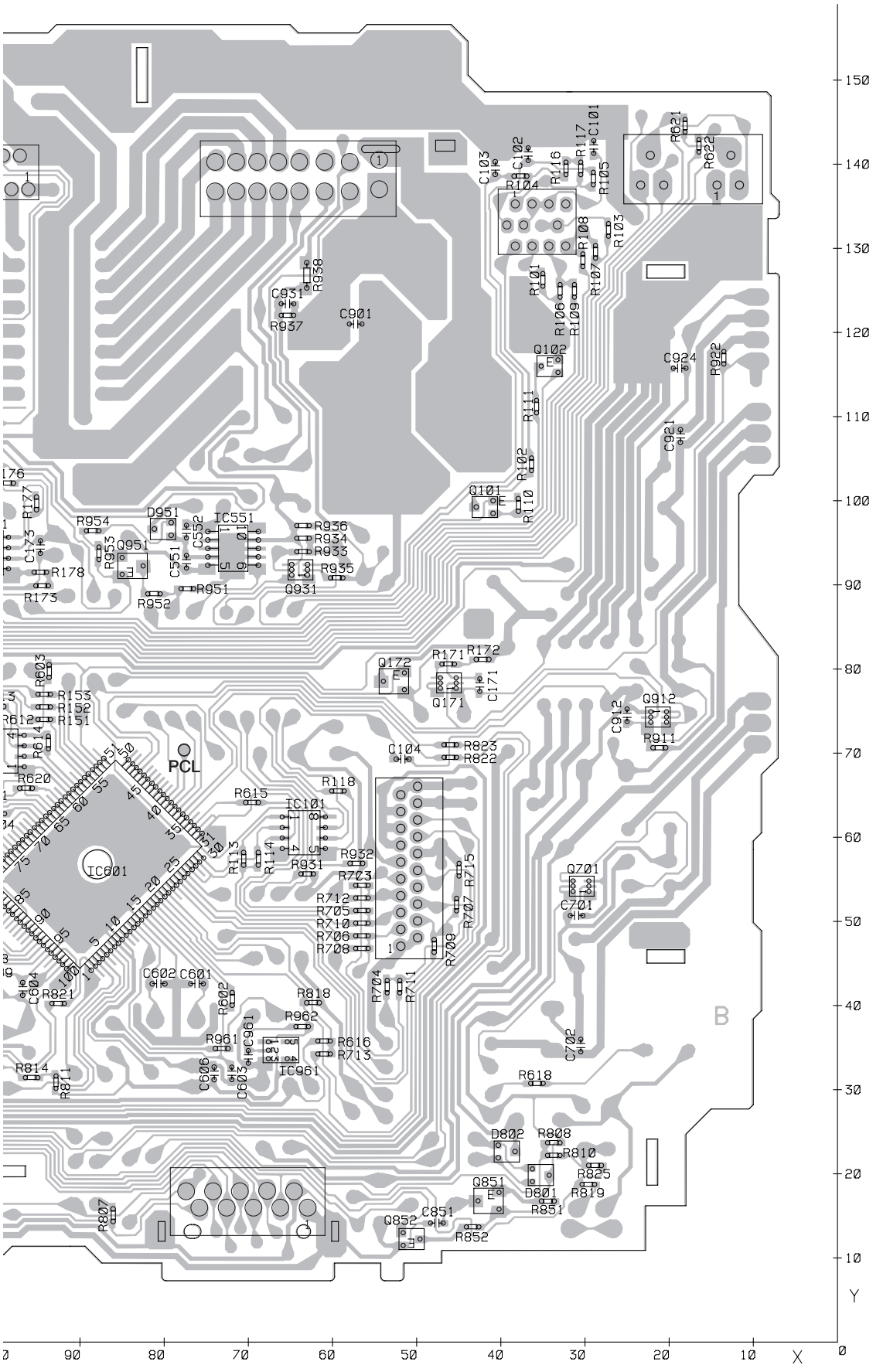
SIDE A


REAR OUTPUT OR
SWBWOOFER OUTPUT
ANTENNA JACK
CN353
CN351
CN401
CN352
CN402
AR401
IC301
CN751
CN801
CN803
FM/AM TUNER UNIT
Z401
X601
FRONT
70 80 90 100 110 120 130 140 150 160 170 180

A TUNER AMP UNIT



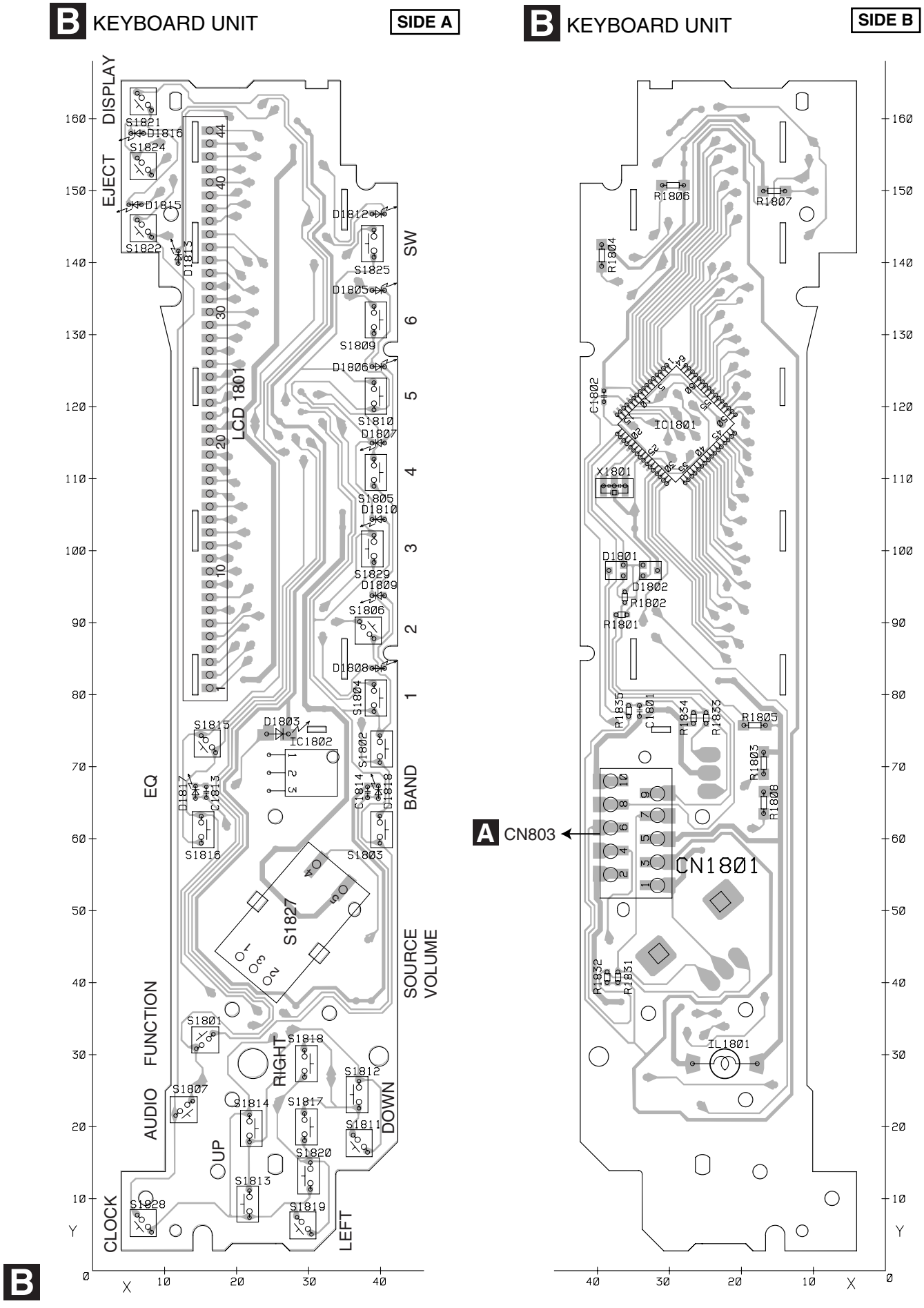
SIDE B



A

DEH-3850MP/XU/ES

4.2 KEYBOARD UNIT



A

B

C

D

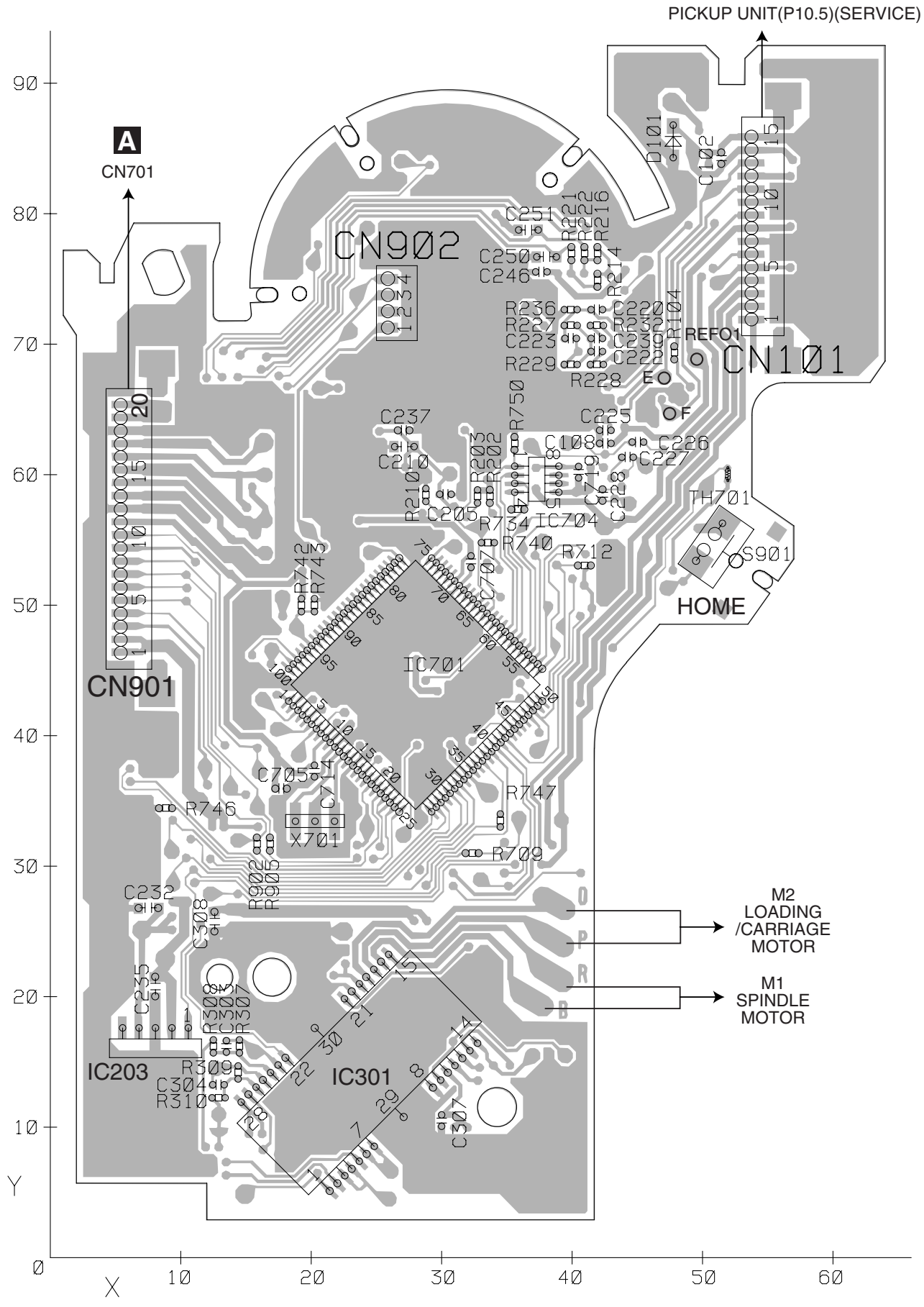
E

F

4.3 CD CORE UNIT(S10.5COMP1)

C CD CORE UNIT(S10.5COMP1)

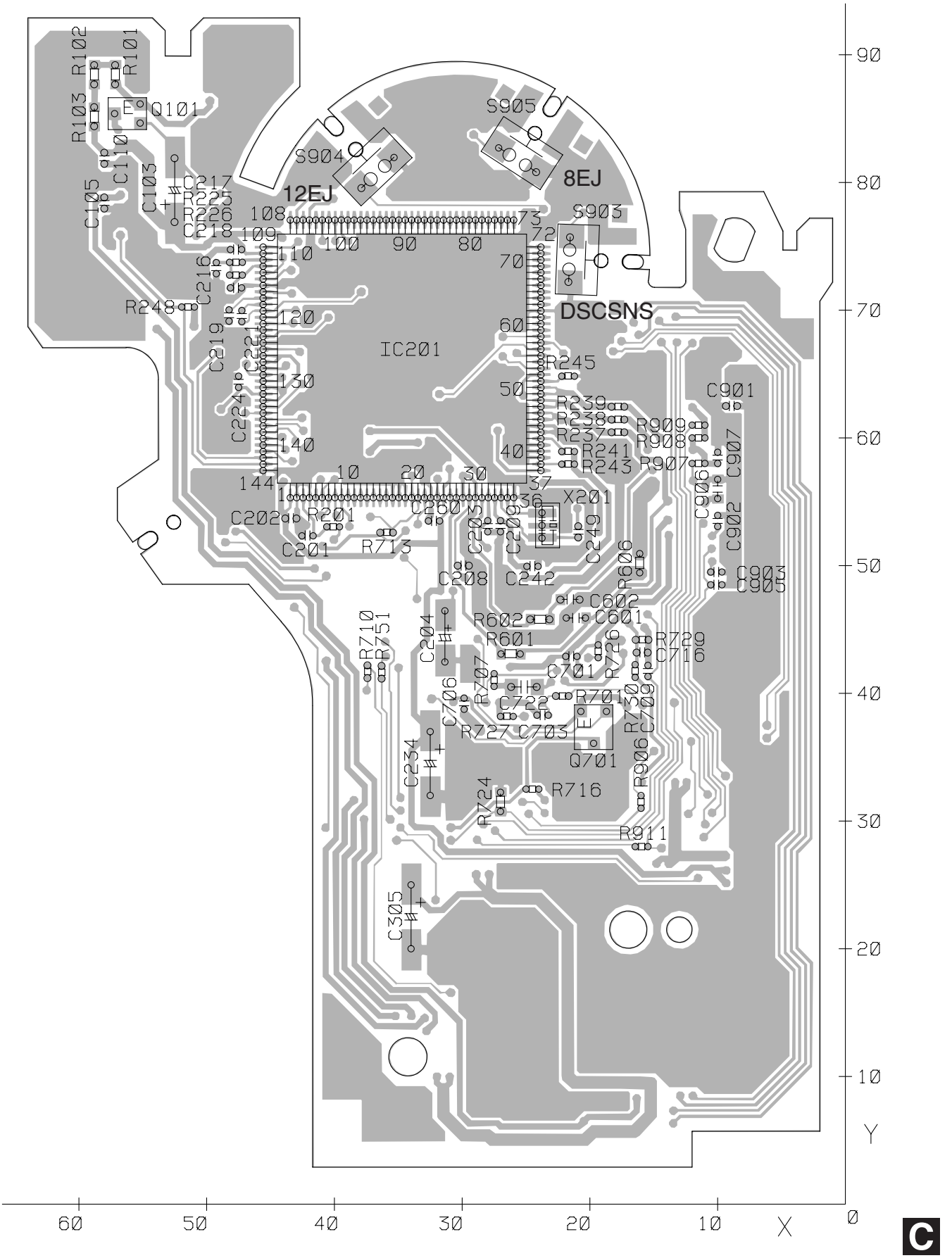
SIDE A



C

C CD CORE UNIT(S10.5COMP1)

SIDE B



5. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

  Chip Resistor

  RS1/◯S◯◯◯J,RS1/◯◯S◯◯◯J

  Chip Capacitor (except for CQS.....)

  CKS....., CCS....., CSZS.....
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Meaning of the figures and others in the parentheses in the parts list.*

  Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

  IC 301 (A, 91, 111) IC NJM2068V

Circuit Symbol and No. **Part No.**

Unit Number : YWM5111(ES)
Unit Number : YWM5109(CN)
Unit Number : YWM5107(GS)
Unit Name : Tuner Amp Unit
Unit Number :
Unit Name : Keyboard Unit
Unit Number : CWX3176
Unit Name : CD Core Unit(S10.5COMP1)

A

Unit Number : YWM5111(ES)
Unit Number : YWM5109(CN)
Unit Number : YWM5107(GS)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 151	(B,136,85) IC	PML015A
IC 301	(A,96,137) IC	PAL007B
IC 401	(B,153,28) IC	NJM2885DL1-33
IC 601	(B,88,57) IC	PEG158B
IC 921	(A,10,124) IC	NJM2388F84
IC 961	(B,67,35) IC	BD4843G
Q 351	(B,163,134) Transistor	UMH3N
Q 451	(B,124,116) Transistor	DTC124EU
Q 453	(B,124,122) Transistor	UMD2N
Q 701	(B,30,54) Transistor	UMD2N
Q 702	(A,9,71) Transistor	2SD2396
Q 841	(B,129,33) Transistor	2SA1036K
Q 842	(B,125,35) Transistor	DTC114EU
Q 851	(B,41,17) Transistor	2SA1036K
Q 852	(B,51,12) Transistor	DTC114EU
Q 911	(A,9,106) Transistor	2SD2396
Q 912	(B,21,74) Transistor	UMD2N
Q 931	(B,64,92) Transistor	UMX1N
D 701	(A,25,57) Diode	HZS7L(C3)
D 801	(B,35,20) Diode	DAN202U
D 802	(B,39,23) Diode	DAP202U
D 803	(B,116,30) Diode	DAN202U
D 804	(B,115,26) Diode	DAP202U
D 805	(B,115,43) Diode	DAN202U
D 806	(B,110,44) Diode	DAP202U
D 810	(A,30,23) Diode	1SS133
D 813	(A,27,28) Diode	1SS133
D 901	(A,77,115) Diode	S5688G
D 902	(A,80,111) Diode	S5688G
D 903	(A,70,100) Diode	S5688G
D 904	(A,66,100) Diode	S5688G
D 911	(A,24,84) Diode	S5688G
D 912	(A,24,78) Diode	HZS6L(B2)
D 931	(A,60,95) Diode	HZS7L(C3)
D 932	(A,56,91) Diode	HZS7L(A1)
L 161	(A,116,85) Inductor	LAU2R2K
L 401	(A,159,91) Inductor	LAU1R0K
L 402	(B,159,96) Inductor	LCTAW220J2520
L 403	(A,158,54) Inductor	LAU1R0K
L 602	(A,99,37) Inductor	LAU2R2K
L 701	(A,64,70) Ferri-Inductor	LAU100K
L 852	(A,50,16) Inductor	LAU2R2K
L 901	(A,39,107) Choke Coil 600μH	CTH1280
X 601	(A,76,38) Crystal Resonator 15.000MHz	CSS1653
⚠FU353	(B,134,137) Fuse 3A	CEK1286
⚠	Fuse 10A	CEK1208
Z 401	(A,166,99) FM/AM Tuner Unit	CWE1952
AR401	(A,175,107) Surge Protector	DSP-201M-S00B

RESISTORS

R 151	(B,94,74)	RS1/16S102J
R 152	(B,94,76)	RS1/16S102J
R 153	(B,94,77)	RS1/16S102J
R 180	(B,119,98)	RS1/16S0R0J
R 301	(B,130,111)	RS1/16S471J
R 303	(B,129,111)	RS1/16S471J
R 304	(B,145,111)	RS1/16S471J
R 306	(B,147,111)	RS1/16S471J

Circuit Symbol and No.		Part No.
R 309	(A,88,79)	RD1/4PU153J
R 351	(B,152,97)	RS1/16S821J
R 352	(B,159,133)	RS1/16S0R0J
R 356	(B,137,103)	RS1/16S821J
R 359	(B,146,133)	RS1/16S223J
R 360	(B,166,139)	RS1/16S223J
R 386	(B,166,136)	RS1/16S0R0J
R 401	(B,160,60)	RS1/16S681J
R 403	(B,160,78)	RS1/16S681J
R 404	(B,160,81)	RS1/16S681J
R 405	(B,160,83)	RS1/16S681J
R 406	(B,160,85)	RS1/16S681J
R 407	(B,160,87)	RS1/16S0R0J
R 414	(A,138,38)	RD1/4PU1R8J
R 421	(B,157,77)	RS1/16S0R0J
R 451	(B,125,113)	RS1/16S103J
R 452	(B,125,125)	RS1/16S221J
R 453	(B,124,119)	RS1/16S153J
R 454	(A,120,119)	RD1/4PU102J
R 602	(B,72,41)	RS1/16S103J
R 603	(B,94,80)	RS1/16S103J
R 604	(B,100,63)	RS1/16S681J
R 605	(B,158,60)	RS1/16S681J
R 606	(B,107,43)	RS1/16S103J
R 607	(B,147,55)	RS1/16S681J
R 609	(B,104,44)	RS1/16S473J
R 610	(B,104,54)	RS1/16S473J
R 612	(B,101,74)	RS1/16S103J
R 613	(B,100,76)	RS1/16S103J
R 615	(B,70,64)	RS1/16S0R0J
R 616	(B,61,36)	RS1/16S473J
R 620	(B,96,66)	RS1/16S0R0J
R 701	(A,20,54)	RD1/4PU271J
R 702	(A,20,61)	RD1/4PU121J
R 703	(B,57,54)	RS1/16S682J
R 704	(B,54,42)	RS1/16S682J
R 705	(B,57,51)	RS1/16S682J
R 706	(B,57,48)	RS1/16S682J
R 707	(B,45,52)	RS1/16S104J
R 708	(B,57,47)	RS1/16S221J
R 709	(B,48,47)	RS1/16S221J
R 710	(B,57,50)	RS1/16S221J
R 711	(B,52,42)	RS1/16S221J
R 712	(B,57,53)	RS1/16S221J
R 713	(B,61,34)	RS1/16S102J
R 715	(B,45,56)	RS1/16S0R0J
R 803	(B,117,45)	RS1/16S473J
R 804	(B,116,24)	RS1/16S222J
R 805	(B,106,25)	RS1/16S222J
R 806	(A,91,16)	RD1/4PU222J
R 807	(B,86,15)	RS1/16S222J
R 808	(B,34,24)	RS1/16S104J
R 809	(B,142,39)	RS1/16S222J
R 810	(B,34,22)	RS1/16S103J
R 811	(B,93,31)	RS1/16S473J
R 813	(B,111,28)	RS1/16S104J
R 814	(B,96,31)	RS1/16S102J
R 815	(B,108,27)	RS1/16S102J
R 816	(B,123,26)	RS1/16S1R0J
R 822	(B,46,70)	RS1/16S102J

Circuit Symbol and No.		Part No.
R 823	(B,46,71)	RS1/16S102J
R 824	(B,115,50)	RS1/16S102J
R 825	(B,29,21)	RS1/16S102J
R 826	(B,121,25)	RS1/16S0R0J
R 841	(B,130,29)	RS1/16S103J
R 842	(B,128,28)	RS1/16S222J
R 851	(B,34,17)	RS1/16S153J
R 852	(B,43,14)	RS1/16S153J
R 853	(B,119,17)	RS1/16S222J
R 911	(B,21,71)	RS1/16S223J
R 912	(A,24,81)	RD1/4PU152J
R 922	(B,14,117)	RS1/16S473J
R 931	(B,63,56)	RS1/16S104J
R 932	(B,57,57)	RS1/16S104J
R 933	(B,64,94)	RS1/16S104J
R 934	(B,64,96)	RS1/16S473J
R 935	(B,60,91)	RS1/16S473J
R 936	(B,64,97)	RS1/16S473J
R 937	(B,65,122)	RS1/16S473J
R 938	(B,63,127)	RS1/4SA102J
R 961	(B,73,35)	RS1/16S102J
R 962	(B,64,38)	RS1/16S822J

CAPACITORS

C 153	(B,163,71)	CKSRYB224K16
C 155	(B,160,69)	CKSRYB224K16
C 159	(B,126,89)	CKSRYB153K50
C 160	(A,122,89)	CEJQ100M16
C 161	(B,139,97)	CKSRYB153K50
C 162	(A,116,95)	CEJQ470M10
C 163	(B,125,87)	CKSRYB104K25
C 165	(A,136,97)	CEJQ100M16
C 305	(A,128,119)	CFTNA224J50
C 306	(A,143,119)	CFTNA224J50
C 307	(A,133,119)	CFTNA224J50
C 308	(A,138,119)	CFTNA224J50
C 309	(B,127,146)	CKSQYB225K10
C 310	(B,132,137)	CKSQYB225K10
C 311	(A,107,128)	CEJQ100M16
C 313	(A,54,125) 3300μF/16V	CCH1494
C 351	(A,129,96)	CEJQ2R2M50
C 352	(A,142,96)	CEJQ2R2M50
C 357	(B,147,133)	CKSRYB222K50
C 358	(B,164,139)	CKSRYB222K50
C 401	(A,152,53)	CEJQ470M6R3
C 402	(B,155,51)	CKSRYB103K50
C 403	(B,151,34)	CKSRYB103K50
C 405	(A,154,87)	CEJQ101M10
C 406	(B,170,91)	CKSRYB104K25
C 407	(B,166,66)	CKSRYB103K50
C 408	(A,142,32)	CEJQ220M16
C 410	(B,141,28)	CKSRYB474K10
C 411	(B,170,90) (ES,GS)	CCSRCH470J50
C 451	(A,124,127)	CEJQ330M10
C 601	(B,76,43)	CCSRCH180J50
C 602	(B,81,43)	CCSRCH200J50
C 604	(B,97,42)	CKSRYB104K16
C 605	(A,100,42)	CEJQ100M16
C 606	(B,74,32)	CKSRYB104K16

Circuit Symbol and No.		Part No.
C 607	(A,76,30)	CEJQ100M16
C 609	(B,147,52)	CCSRCH470J50
C 701	(B,31,51)	CKSRYB473K25
C 703	(A,34,35) 470μF/16V	CCH1331
C 704	(B,145,77)	CKSRYB105K10
C 705	(B,134,70)	CKSRYB105K10
C 851	(B,48,14)	CKSRYB104K16
C 901	(B,57,121)	CKSRYB104K50
C 911	(A,32,59)	CEJQ470M10
C 912	(B,25,75)	CKSRYB103K50
C 913	(A,25,68) 470μF/16V	CCH1331
C 921	(B,19,108)	CKSRYB103K50
C 922	(A,20,104)	CEJQ221M10
C 923	(A,18,120)	CEJQ101M16
C 924	(B,19,116)	CKSRYB103K50
C 961	(B,70,34)	CKSRYB473K25
C 962	(A,67,39)	CEJQ100M16

B

Unit Number :
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1801	(B,29,118)	IC	PD6340A
IC 1802	(A,25,69)	IC	TSOP4840SB1
D 1801	(B,37,97)	Diode	DAN202U
D 1802	(B,33,97)	Diode	DAP202U
D 1803	(A,26,75)	LED	NESW505C-5273
D 1805	(A,40,136)	LED	SML-310PT
D 1806	(A,40,126)	LED	SML-310PT
D 1807	(A,40,115)	LED	SML-310PT
D 1808	(A,40,84)	LED	SML-310PT
D 1809	(A,40,94)	LED	SML-310PT
D 1810	(A,40,104)	LED	SML-310PT
D 1812	(A,40,147)	LED	SML-310PT
D 1813	(A,12,141)	LED	SML-310PT
D 1815	(A,6,148)	LED	SML-310PT
D 1816	(A,6,158)	LED	SML-310PT
D 1817	(A,14,66)	LED	SML-310PT
D 1818	(A,40,66)	LED	SML-310PT
X 1801	(B,38,109)	Ceramic Resonator 5.00MHz	CSS1547
S 1827	(A,27,48)	Encoder(SOURCE,VOLUME)	YSD5005
IL 1801	(B,22,29)	Lamp 40mA,14V	CEL1651
LCD1801	(A,16,81)	LCD(ES,CN)	YAW5055
LCD1801	(A,16,81)	LCD(GS)	YAW5067

RESISTORS

R 1801	(B,37,91)	RS1/16S222J
R 1802	(B,36,94)	RS1/16S222J
R 1803	(B,17,71)	RS1/4SA561J
R 1804	(B,39,141)	RS1/4SA471J
R 1805	(B,18,76)	RS1/4SA471J
R 1806	(B,30,151)	RS1/4SA681J
R 1807	(B,15,150)	RS1/4SA681J
R 1808	(B,17,65)	RS1/4SA681J
R 1831	(B,37,41)	RS1/16S472J
R 1832	(B,39,41)	RS1/16S472J
R 1833	(B,25,77)	RS1/16S2R2J
R 1835	(B,36,78)	RS1/16S121J

Circuit Symbol and No.		Part No.

CAPACITORS

C 1801	(B,34,78)	CKSRYB474K10
C 1802	(B,39,121)	CKSRYF104Z25

C

Unit Number : CWX3176
Unit Name : CD Core Unit(S10.5COMP1)

MISCELLANEOUS

IC 201	(B,39,70)	IC	UPD63763CGJ
IC 203	(A,12,16)	IC	NJM2886DL3-33
IC 301	(A,28,18)	IC	BA5835FP
IC 701	(A,32,48)	IC	PE5505A
Q 101	(B,60,89)	Transistor	2SA1577
Q 701	(B,24,41)	Transistor	UN2111
X 201	(B,28,57)	Ceramic Resonator 16.934MHz	CSS1603
X 701	(A,24,37)	Ceramic Resonator 4.000MHz	CSS1652
S 901	(A,57,57)	Switch(HOME)	CSN1067
S 903	(B,23,78)	Switch(DSCSNS)	CSN1067
S 904	(B,42,87)	Switch(12EJ)	CSN1068
S 905	(B,28,88)	Switch(8EJ)	CSN1068

RESISTORS

R 101	(B,61,92)	RS1/10SR2R4J
R 102	(B,63,92)	RS1/10SR2R4J
R 103	(B,63,89)	RS1/10SR2R7J
R 104	(A,52,73)	RS1/16SS102J
R 201	(B,44,57)	RS1/16SS102J
R 202	(A,38,62)	RS1/16SS473J
R 203	(A,37,62)	RS1/16SS473J
R 214	(A,46,79)	RS1/16SS472J
R 216	(A,46,81)	RS1/16SS472J
R 221	(A,44,81)	RS1/16SS103J
R 222	(A,45,81)	RS1/16SS103J
R 225	(B,52,78)	RS1/16SS103J
R 226	(B,52,77)	RS1/16SS393J
R 227	(A,44,75)	RS1/16SS562J
R 228	(A,46,72)	RS1/16SS122J
R 229	(A,44,72)	RS1/16SS472J
R 232	(A,46,75)	RS1/16SS122J
R 241	(B,26,63)	RS1/16SS333J
R 243	(B,26,62)	RS1/16SS333J
R 245	(B,26,69)	RS1/16SS333J
R 248	(B,55,74)	RS1/16SS105J
R 307	(A,19,20)	RS1/16SS183J
R 308	(A,17,20)	RS1/16SS183J
R 309	(A,18,18)	RS1/16SS183J
R 310	(A,17,16)	RS1/16SS183J
R 601	(B,30,47)	RS1/16S101J
R 602	(B,28,50)	RS1/16S101J
R 606	(B,20,54)	RS1/16S0R0J
R 701	(B,26,44)	RS1/16SS221J
R 707	(B,32,45)	RS1/16SS473J
R 709	(A,36,35)	RS1/16SS222J
R 710	(B,41,46)	RS1/16SS102J
R 712	(A,45,57)	RS1/16SS222J

Circuit Symbol and No.		Part No.
R 713	(B,40,57)	RS1/16SS222J
R 716	(B,29,37)	RS1/16SS472J
R 724	(B,31,36)	RS1/16S473J
R 726	(B,23,47)	RS1/16SS103J
R 727	(B,31,42)	RS1/16SS473J
R 729	(B,20,48)	RS1/16SS223J
R 730	(B,20,46)	RS1/16SS473J
R 740	(A,38,59)	RS1/16SS222J
R 746	(A,13,38)	RS1/16SS104J
R 750	(A,40,66)	RS1/16SS473J
R 902	(A,20,36)	RS1/16SS221J
R 905	(A,21,36)	RS1/16SS221J
R 906	(B,20,36)	RS1/16SS221J
R 907	(B,16,62)	RS1/16SS0R0J
R 908	(B,16,64)	RS1/16SS0R0J
R 911	(B,20,32)	RS1/16SS0R0J

CAPACITORS

C 103	(B,57,83)	CEVW101M16
C 108	(A,47,66)	CKSSYB104K10
C 201	(B,46,56)	CKSSYB102K50
C 202	(B,47,58)	CKSSYB104K10
C 204	(B,35,48)	CEVW220M6R3
C 205	(A,34,63)	CKSSYB104K10
C 208	(B,34,54)	CKSSYB104K10
C 209	(B,31,57)	CKSSYB104K10
C 210	(A,31,66)	CKSRYB105K10
C 216	(B,53,77)	CKSSYB332K50
C 217	(B,52,79)	CKSSYB104K10
C 218	(B,52,76)	CKSSYB473K10
C 219	(B,52,74)	CKSSYB104K10
C 220	(A,46,77)	CKSSYB182K50
C 221	(B,51,74)	CKSSYB104K10
C 222	(A,46,73)	CCSSCH560J50
C 223	(A,44,74)	CCSSCH4R0C50
C 224	(B,52,68)	CKSSYB104K10
C 225	(A,47,67)	CKSSYB103K16
C 226	(A,49,67)	CCSSCH680J50
C 227	(A,48,65)	CCSSCH470J50
C 228	(A,46,62)	CKSSYB103K16
C 232	(A,12,31)	CKSRYB105K10
C 237	(A,31,67)	CKSSYB104K10
C 239	(A,46,74)	CCSSCH220J50
C 246	(A,42,80)	CKSSYB104K10
C 250	(A,42,81)	CKSRYB102K50
C 251	(A,41,83)	CKSRYB102K50
C 303	(A,18,20)	CKSSYB472K25
C 304	(A,17,17)	CKSSYB103K16
C 307	(A,34,15)	CKSSYB104K10
C 308	(A,17,30)	CKSRYB105K10
C 601	(B,25,50)	CCSRCH102J50
C 602	(B,26,51)	CCSRCH102J50
C 701	(B,25,47)	CKSSYB104K10
C 703	(B,28,42)	CKSSYB103K16
C 706	(B,34,43)	CKSSYB104K10
C 707	(A,36,57)	CKSSYB104K10
C 714	(A,24,41)	CKSSYB104K10
C 722	(B,29,45)	CKSQYB475K6R3
C 903	(B,14,54)	CKSSYB471K50

Circuit Symbol and No.		Part No.
C 907	(B,14,62)	CKSSYB103K16

Miscellaneous Parts List

	Pickup Unit(P10.5)(Service)	CXX1942
M 1	Motor Unit(SPINDLE)	CXC6742
M 2	Motor Unit(LOADING/CARRIAGE)	CXC4026

6. ADJUSTMENT
6.1 CD ADJUSTMENT

1) Cautions on adjustments

• In this product the single voltage (3.3V) is used for the regulator. The reference voltage is the REFO1 (1.65V) instead of the GND.
If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:
a. Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.
b. In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.
c. If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

• Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

• For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

• In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

• The RFI and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

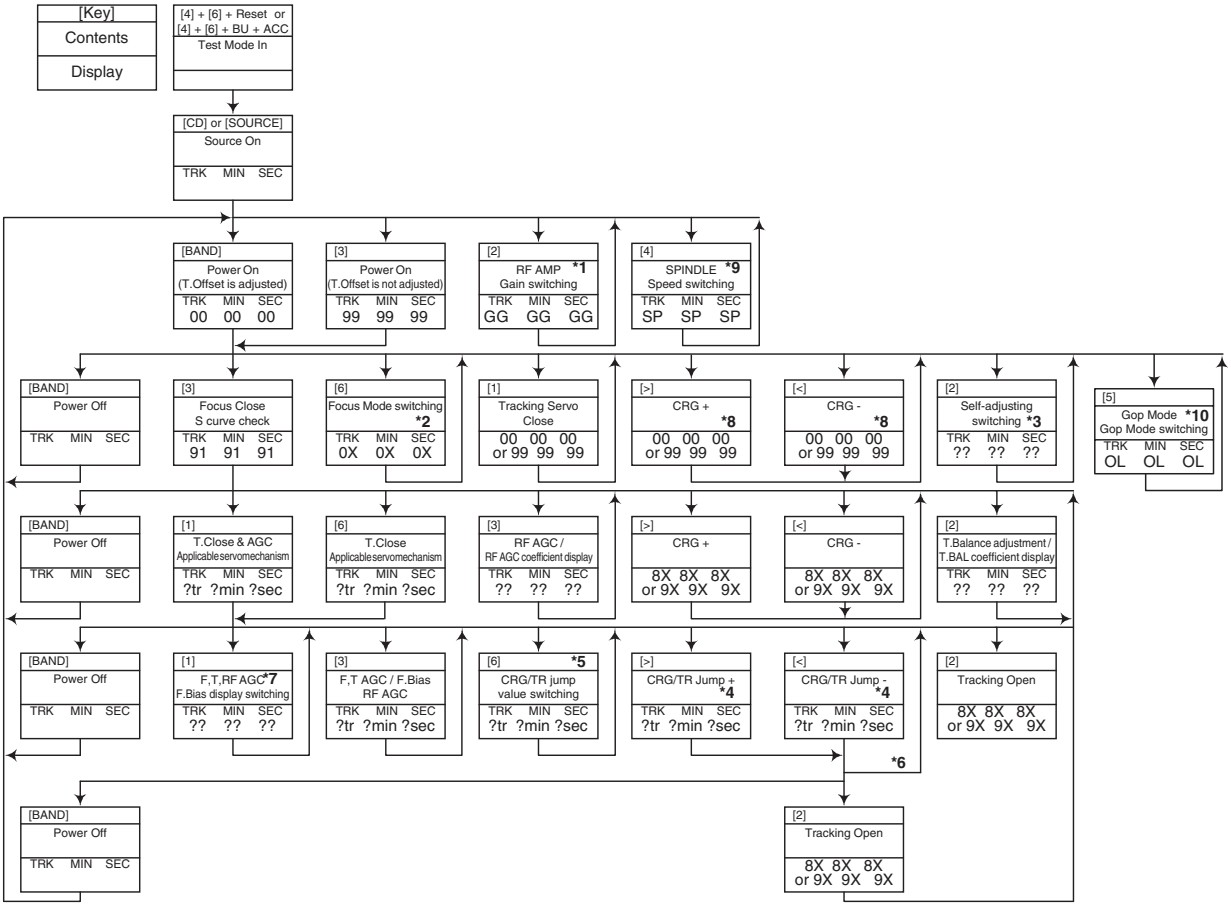
• The load and eject operation is not guarantied with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

2) Test mode

This mode is used to adjust the CD mechanism module.
• To enter the test mode.
While pressing the 4 and 6 keys at the same time, reset.
• To exit from the test mode.
Turn off the ACC and back up.

Notes:
a. During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
b. If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.
c. For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
d. For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
e. When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0dB, and the auto-adjustment values are reset to the default settings.

● Flow Chart


[Key]
Contents
Display
[4] + [6] + Reset or [4] + [6] + BU + ACC
Test Mode In
[CD] or [SOURCE]
Source On
TRK MIN SEC
[BAND] Power On (T.Offset is adjusted) TRK MIN SEC 00 00 00
[3] Power On (T.Offset is not adjusted) TRK MIN SEC 99 99 99
[2] RF AMP *1 Gain switching TRK MIN SEC GG GG GG
[4] SPINDLE *9 Speed switching TRK MIN SEC SP SP SP
[BAND] Power Off TRK MIN SEC
[3] Focus Close S curve check TRK MIN SEC 91 91 91
[6] Focus Mode switching *2 TRK MIN SEC 0X 0X 0X
[1] Tracking Servo Close 00 00 00 or 99 99 99
[>] CRG + *8 00 00 00 or 99 99 99
[<] CRG - *8 00 00 00 or 99 99 99
[2] Self-adjusting switching *3 TRK MIN SEC ?? ?? ??
[5] Gop Mode *10 Gop Mode switching TRK MIN SEC OL OL OL
[1] T.Close & AGC Applicable servomechanism TRK MIN SEC ?tr ?min ?sec
[6] T.Close Applicable servomechanism TRK MIN SEC ?tr ?min ?sec
[3] RF AGC / RF AGC coefficient display TRK MIN SEC ?? ?? ??
[>] CRG + 8X 8X 8X or 9X 9X 9X
[<] CRG - 8X 8X 8X or 9X 9X 9X
[2] T.Balance adjustment / T.BAL coefficient display TRK MIN SEC ?? ?? ??
[1] F,T,RF AGC *7 F.Bias display switching TRK MIN SEC ?? ?? ??
[3] F,T AGC / F.Bias RF AGC TRK MIN SEC ?tr ?min ?sec
[6] *5 CRG/TR jump value switching TRK MIN SEC ?tr ?min ?sec
[>] CRG/TR Jump + *4 TRK MIN SEC ?tr ?min ?sec
[<] CRG/TR Jump - *4 TRK MIN SEC ?tr ?min ?sec
[2] Tracking Open 8X 8X 8X or 9X 9X 9X
*6
[BAND] Power Off TRK MIN SEC
[2] Tracking Open 8X 8X 8X or 9X 9X 9X

*1) TYP (TRK MIN SEC) → + 6 dB ($^{TRK}06^{MIN}06^{SEC}06$) → + 12 dB ($^{TRK}12^{MIN}12^{SEC}12$) → TYP

*2) Focus Close → S Curve check setting → F EQ measurement setting
$^{TRK}00^{MIN}00^{SEC}00$ ($^{TRK}01^{MIN}01^{SEC}01$) ($^{TRK}02^{MIN}02^{SEC}02$)
($^{TRK}99^{MIN}99^{SEC}99$)

*3) F.Offset Display → RF.Offset → T.Offset Display → Switch to the order of the original display

*4) 1TR/4TR/10TR/32TR/100TR

*5) Single → 4TR → 10TR → 32TR → 100TR → CRG Move
9x(8x):91(81) 92(82) 93(83) 94(84) 95(85) 96(86)

*6) Only at the time of CRG move, 100TR jump

*7) TRK/MIN/SEC → F.AGC → T.AGC Gain → F.Bias → RF AGC

*8) CRG motor voltage = 2 [V]

*9) TYP (1X) (TRK MIN SEC) → 2X ($^{TRK}22^{MIN}22^{SEC}22$) → 1X ($^{TRK}11^{MIN}11^{SEC}11$) → TYP (1X)

*10) OFF(TYP) (TRK MIN SEC) → FORCUS ($^{TRK}70^{MIN}70^{SEC}70$) → TRACKING ($^{TRK}71^{MIN}71^{SEC}71$) → OFF(TYP)

[Key]	Operation Test Mode
[BAND]	Power On/Off
[>]	CRG + / TR Jump + (Direction of the external surface)
[<]	CRG - / TR Jump - (Direction of the internal surface)
[1]	T. CLS & AGC & Applicable servomechanism / AGC,AGC display setting
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T. Open
[3]	F. Close,S Curve / Rough Servo and RF AGC / F,T,RF AGC
[4]	SPDL 1X/2X switching As for the double speed(2x), audio output cannot be supported.
[5]	Error Rate measurement ON : ERR 30Counts Start BER display data[%]
[6]	F. Mode switching / Tracking Close / CRG•TR Jump Switching

• As for the double speed (2x), audio output cannot be supported

*) • After the [Eject] key is pressed keys other than the [Eject] key should not be pressed, until disc ejection is complete.
• When the key [2] or [3] is pressed during the Focus Search, the power supply should be immediately turned off (otherwise the lens sticks to Wall, causing the actuator to be damaged).
• In the case of TR jump other than to 100TR, the function shall continue to be processed even if the TR jump key is released. As for the CRG Move and 100TR Jump, the mechanism shall be set to the Tracking Close mode when the key is released.
• When the power is turned on/off the jump mode is reset to the Single TR (91) while the gain of the RFAMP is reset to 0 dB. At the same time all the self-adjusting values shall return to the default setting.

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

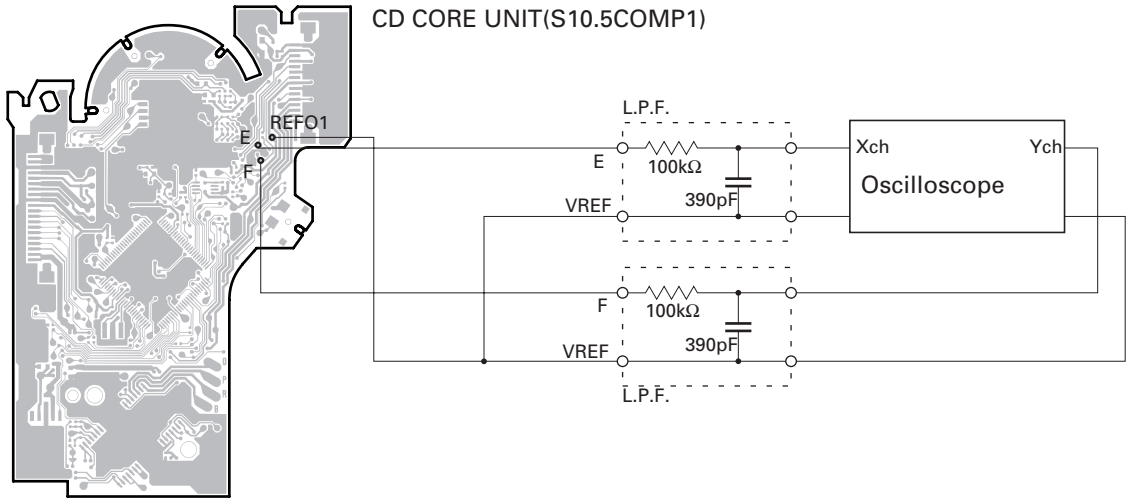
• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, REFO1
• Disc	• TCD-782
• Mode	• TEST MODE



• **Checking Procedure**

1. In test mode, load the disc and switch the 3V regulator on.
2. Using the → and ← buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

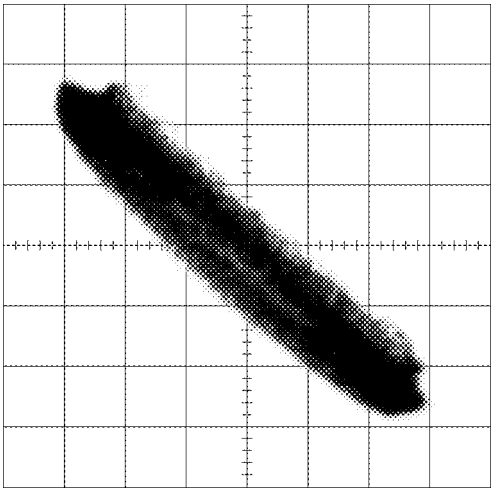
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

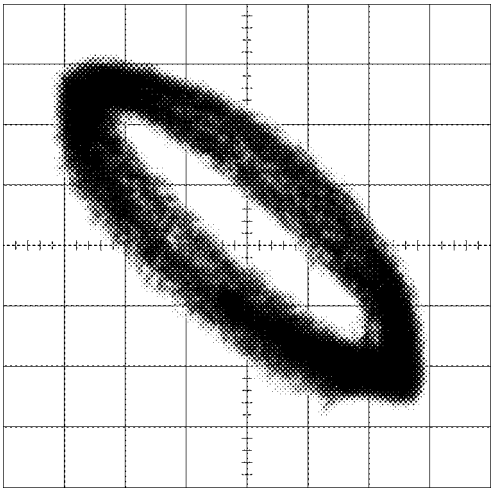
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

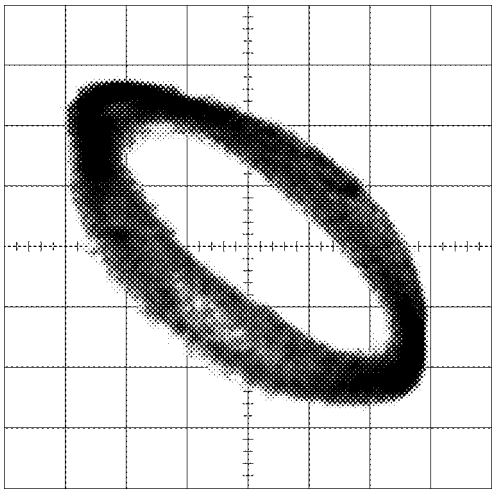
0°



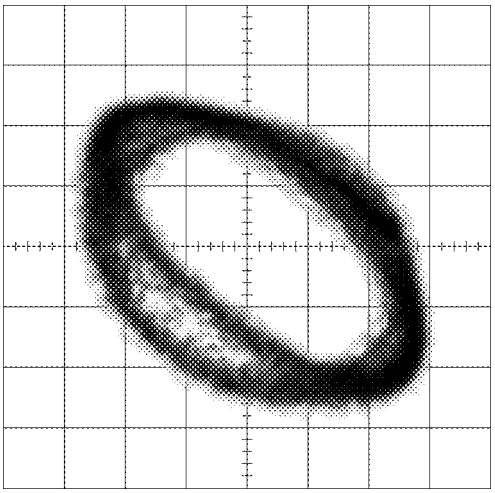
30°



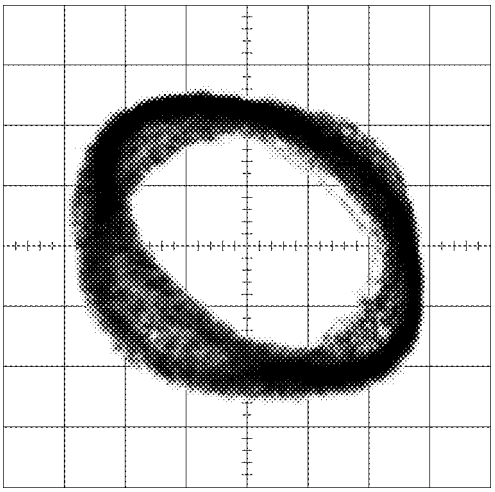
45°



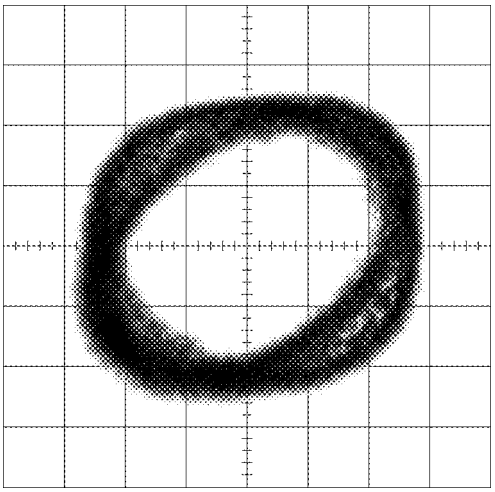
60°



75°



90°



6.3 ERROR MODE

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR–xx	ERR–xx	E–xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Communication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

6.4 SYSTEM MICROCOMPUTER TEST PROGRAM

● PCL output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN IC601(Pin 88) terminal to H.
The clock signal is output from the PCL terminal IC601(Pin 39).
The frequency of the clock signal is 468 750 Hz that is one 32th of the fundamental frequency.
The clock signal should be 468 750 Hz(- 10 Hz, + 15 Hz).
If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● **Removing the Case (not shown)**

1. Remove the Case.

● **Removing the CD Mechanism Module (Fig.1)**

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● **Removing the Grille Assy (Fig.1)**

2 Release the two latchs and then remove the Grille Assy.

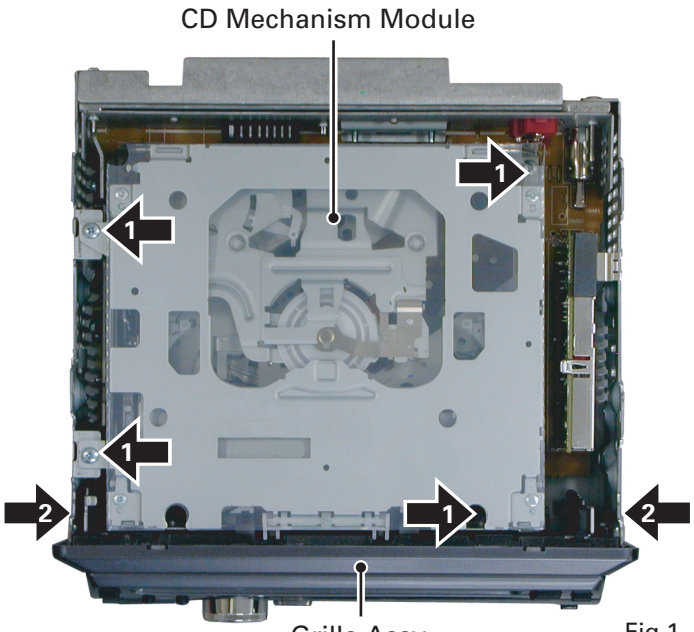


Fig.1

● **Removing the Tuner Amp Unit (Fig.2)**

1 Remove the screw.

2 Remove the three screws.

3 Straighten the tabs at three locations indicated.

4 Remove the screw and then remove the Tuner Amp Unit.

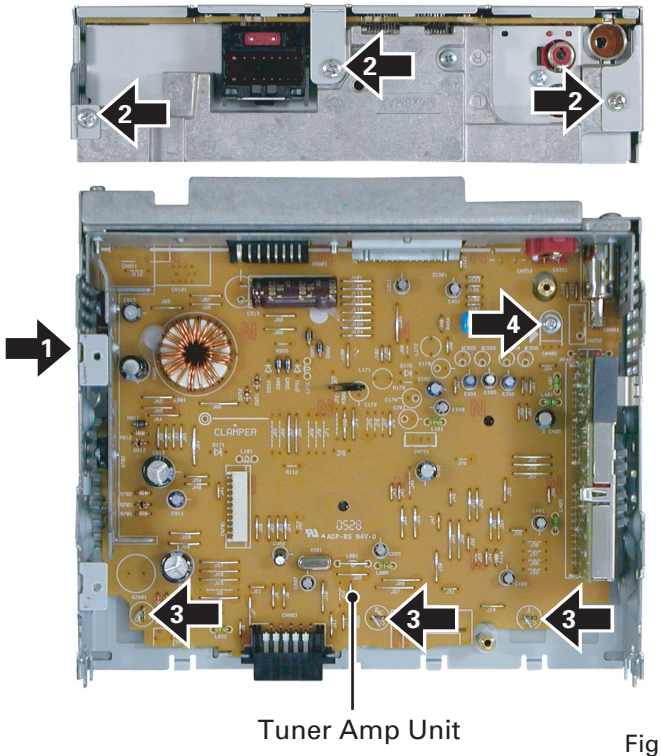
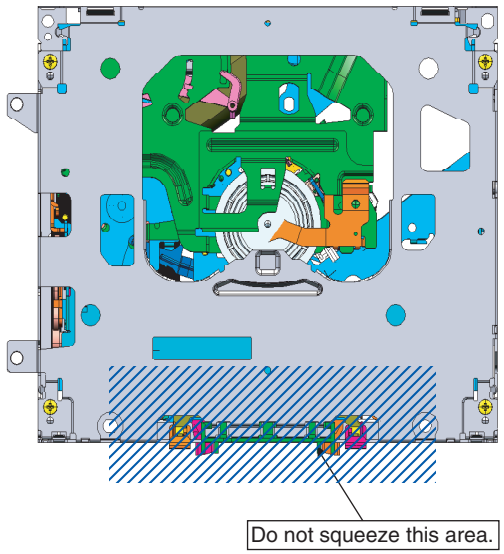


Fig.2

● How to hold the Mechanism Unit

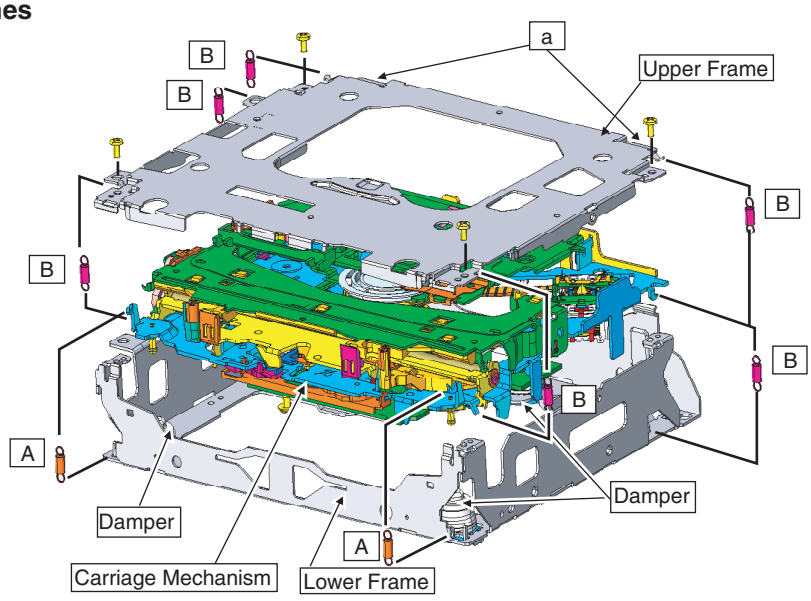
1. Hold the Upper and Lower Frames.
2. Do not hold the front portion of the Upper Frame, because it is not very solid.



● Removing the Upper and Lower Frames

1. With a disc inserted and clamped in the mechanism, remove the two Springs (A), the six Springs (B), and the four Screws.
2. Turn the Upper Frame using the part "a" as a pivot, and remove the Upper Frame.
3. While lifting the Carriage Mechanism, remove it from the three Dampers.

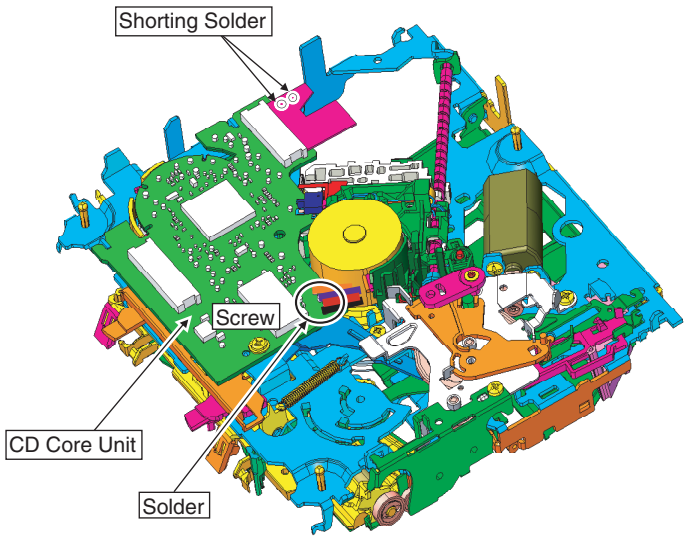
Caution: When assembling, be sure to apply some alcohol to the Dampers and assemble the mechanism in a clamped state.



● How to remove the CD Core Unit

1. Apply Shorting Solder to the flexible cable of the Pickup, and disconnect it from the connector.
2. Unsolder the four leads, and loosen the Screw.
3. Remove the CD Core Unit.

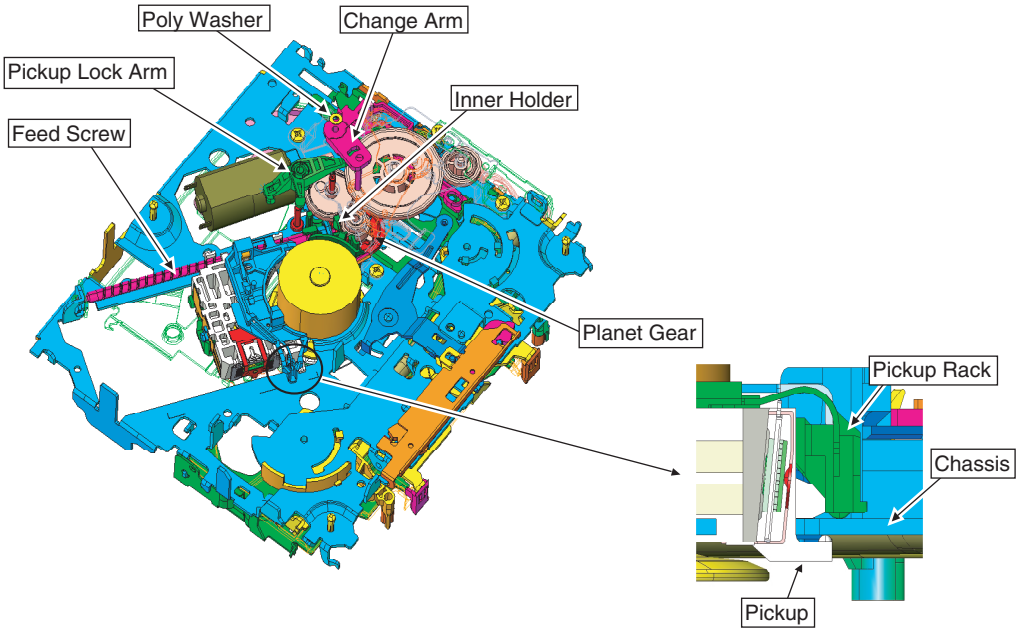
Caution: When assembling the CD Core Unit, assemble it with the SW in a clamped state so as not to damage it.



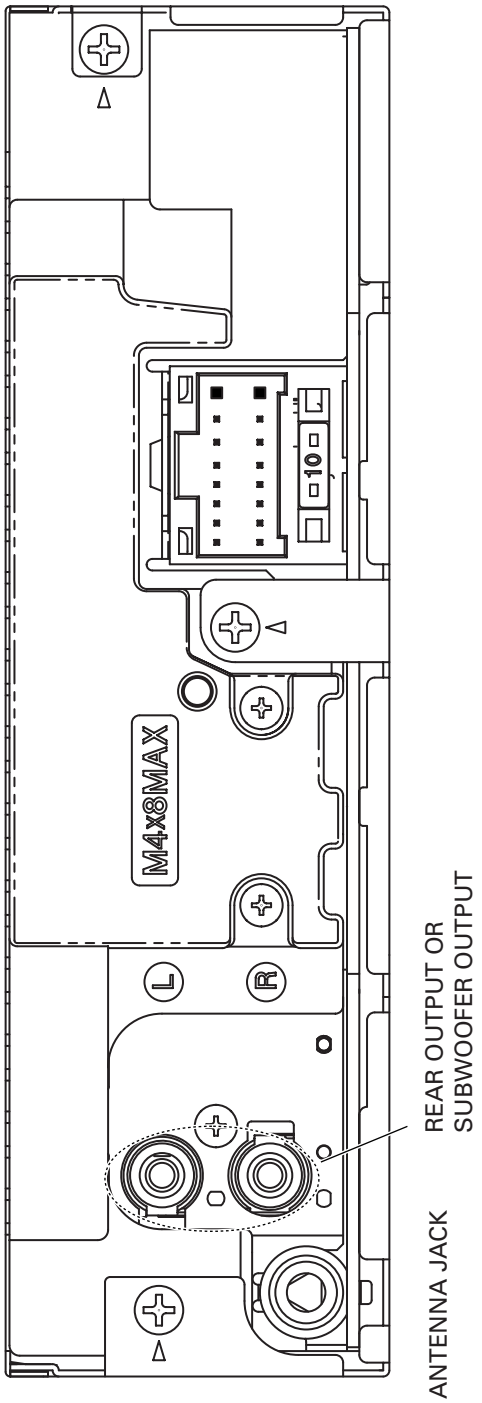
● How to remove the Pickup Unit

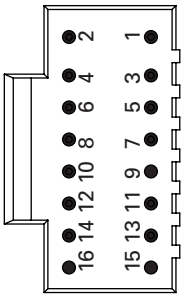
1. Make the system in the carriage mechanism mode, and have it clamped.
2. Remove the CD Core Unit and remove the leads from the Inner Holder.
3. Remove the Poly Washer, Change Arm, and Pickup Lock Arm.
4. While releasing from the hook of the Inner Holder, lift the end of the Feed Screw.

Caution: When assembling, move the Planet Gear to the load/eject position before setting the Feed Screw in the Inner Holder.
Assemble the sub unit side of the Pickup, taking the plate (Chassis) in-between. When treating the leads of the Load Carriage Motor Assy, do not make them loose over the Feed Screw.



7.1.2 CONNECTOR FUNCTION DESCRIPTION





1	B.UP	9	RL-
2	GND	10	FL-
3	ACC	11	RL+
4	NC	12	FL+
5	NC	13	RR-
6	B.REM	14	FR-
7	NC	15	RR+
8	NC	16	FR+

7.2 PARTS
7.2.1 IC

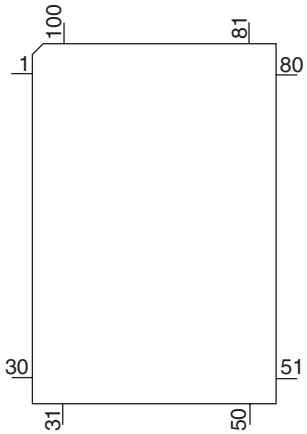
● **Pin Functions (PEG158B)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	ILMPW	O	C	Illumination output
2	NC			Not used
3,4	ROT1,0	I		Rotary encoder pulse input 1,0
5,6	NC			Not used
7	SWVDD	O	C	GRILLE : Chip enable output
8	BYTE	I		External data bus width change input
9	CNVSS	I		Processor mode change input
10,11	NC			Not used
12	$\overline{\text{RESET}}$	I		Reset input
13	XOUT	O		Crystal oscillating element connection output
14	VSS	I		GND
15	XIN	I		Crystal oscillating element connection input
16	VCC	I		Power supply
17	$\overline{\text{NMI}}$	I	C	NMI input
18	$\overline{\text{DSENS}}$	I		Detach sense input
19	$\overline{\text{BSENS}}$	I		Back up sense input
20	$\overline{\text{ASENS}}$	I		ACC sense input
21	$\overline{\text{CD-RESET}}$	O	C	CD Mechanism Module : Reset output
22	NC			Not used
23	$\overline{\text{BRST}}$	O	C	P-BUS : Reset output
24	$\overline{\text{BRXEN}}$	I/O	C	P-BUS : RX enable input/output
25	$\overline{\text{BSRQ}}$	I		P-BUS : Slave service request input
26-30	NC			Not used
31	BSO	O	C	P-BUS : Serial output data
32	BSI	I		P-BUS : Serial input data
33	BSCK	O	C	P-BUS : Serial clock output
34	KEYD	I		Wired remote control key input
35	DPDT	O	C	GRILLE : Data output
36	KYDT	I		GRILLE : Data input
37,38	NC			Not used
39	PCL	O	C	Output for clock adjustment
40-46	NC			Not used
47	DALMON	O	C	For consumption low-current output
48	SYSPW	O	C	System power control output
49-52	NC			Not used
53	MUTE	O	C	Mute output
54	VST	O	C	E.VOL : Strobe output
55	VCK	O	C	E.VOL : Clock output
56	VDT	O	C	E.VOL : Data output
57	NC			Not used
58	ROMDATA	I/O	C	ROM correction : Data input/output
59	ROMCK	O	C	ROM correction : Clock output
60	ROMCS	O	C	ROM correction : Chip select output
61	NC			Not used
62	VCC	I		Power supply
63	NC			Not used
64	VSS	I		GND
65	$\overline{\text{CE2}}$	O	C	TUNER : Chip enable output(EEPROM)
66	CE1	O	C	TUNER : Chip enable output(PLL)
67	TUNPCK	O	C	TUNER : Clock output(PLL)
68	TUNPDI	I		TUNER : Data input(PLL)
69-85	NC			Not used
86	TUNPDO	O	C	TUNER : Data output(PLL)
87	NC			Not used
88	TESTIN	I		Test program input

Pin No.	Pin Name	I/O	Format	Function and Operation
89-91	NC			Not used
92	SSENS			Source key
93	NC			Not used
94	KEYAD	I		Wired remote control analog input
95	MODEL	I		Model detect input
96	AVSS	I		Analog GND
97	SL	I		Signal level input
98	VREF	I		Reference voltage
99	AVCC	I		Analog power supply
100	NC			Not used

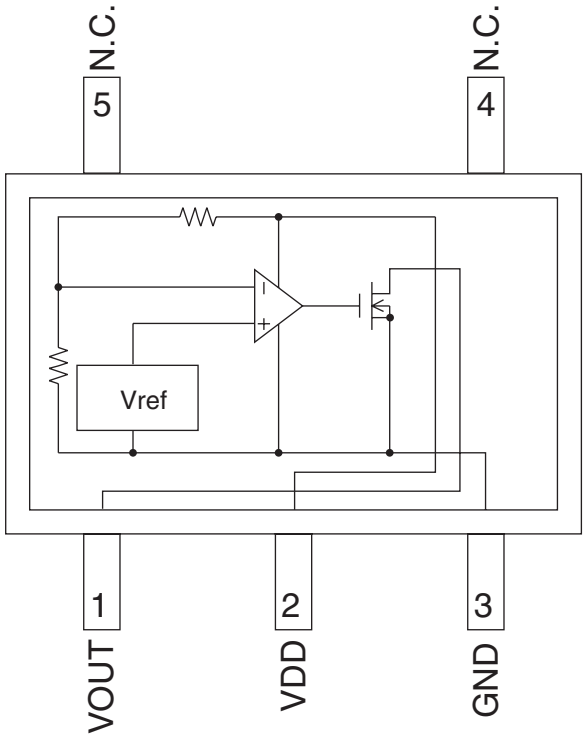
Format	meaning
C	C MOS
N	Nch open drain

* PEG158B



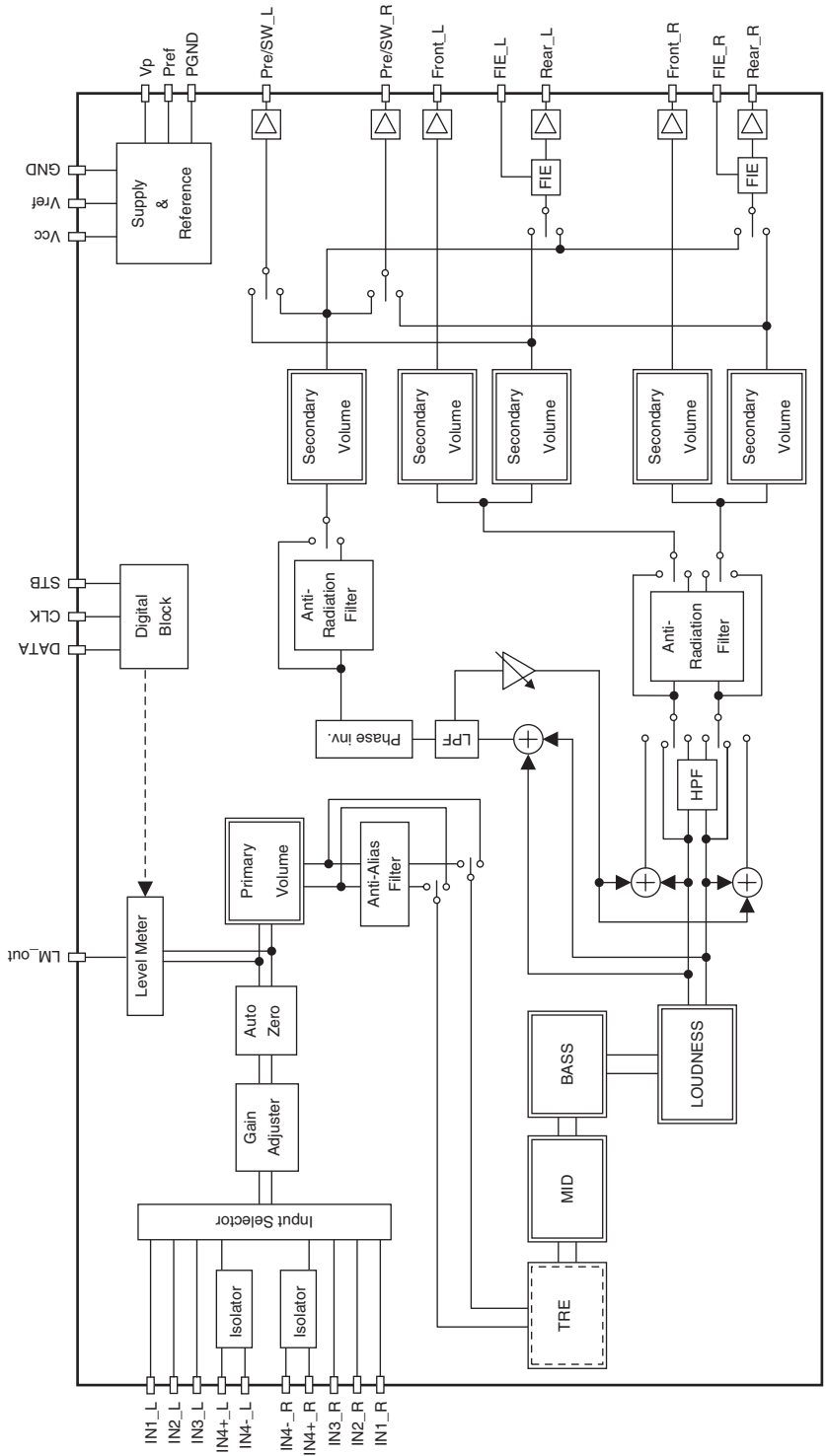
IC's marked by * are MOS type.
Be careful in handling them because they are
very liable to be damaged by electrostatic induction.

BD4843G

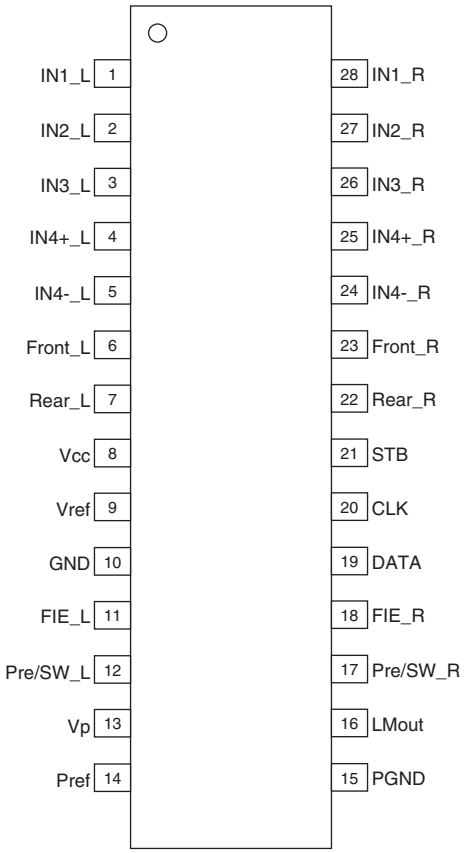


PML015A

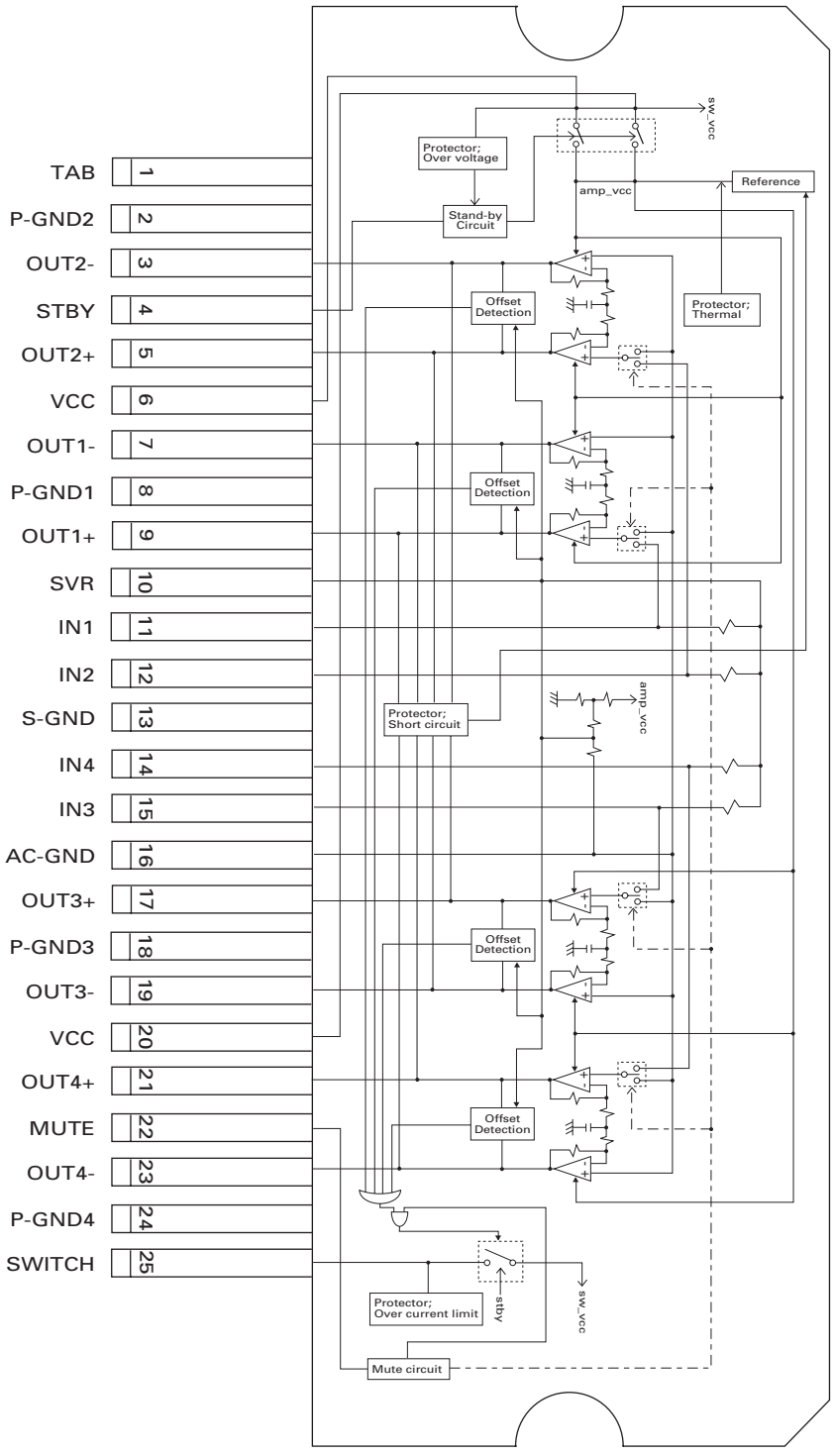
● Block Diagram



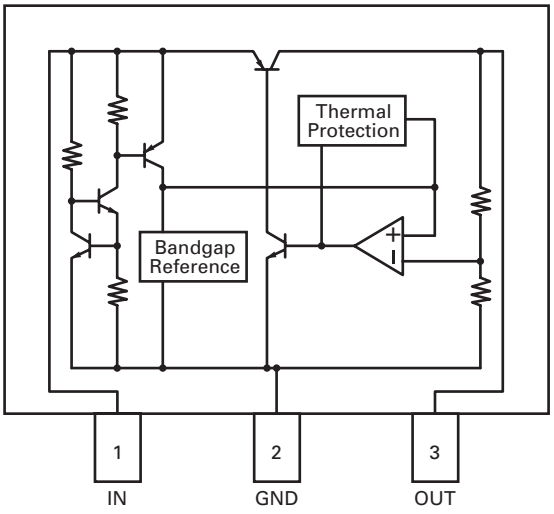
● Pin Layout



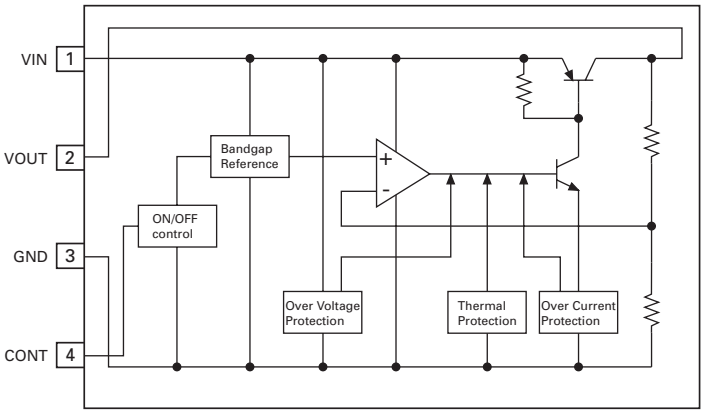
PAL007B


TAB 1
P-GND2 2
OUT2- 3
STBY 4
OUT2+ 5
VCC 6
OUT1- 7
P-GND1 8
OUT1+ 9
SVR 10
IN1 11
IN2 12
S-GND 13
IN4 14
IN3 15
AC-GND 16
OUT3+ 17
P-GND3 18
OUT3- 19
VCC 20
OUT4+ 21
MUTE 22
OUT4- 23
P-GND4 24
SWITCH 25
Protector; Over voltage
Stand-by Circuit
sw_vcc
amp_vcc
Reference
Offset Detection
Protector; Thermal
Protector; Short circuit
Protector; Over current limit
stby
Mute circuit

NJM2885DL1-33



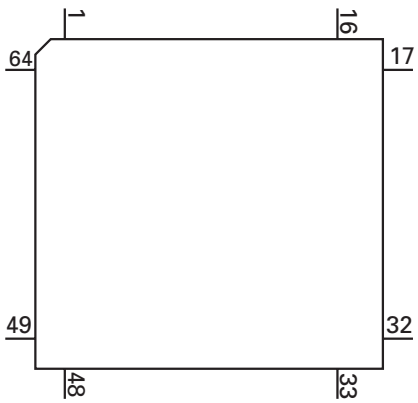
NJM2388F84



● Pin Functions(PD6340A)

Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	VLCD		LCD drive power supply
11-14	KST3-0	O	Key strobe output
15,16	KDT0,1	I	Key data input (analogue input)
17	REW	I	Remote control reception input
18	DPDT	I	Display data input
19	NC		Not used
20	KYDT	O	Key data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27	NC		Not used
28	KST4	O	Key strobe output
29-32	NC		Not used
33-55	SEG35-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

* PD6340A

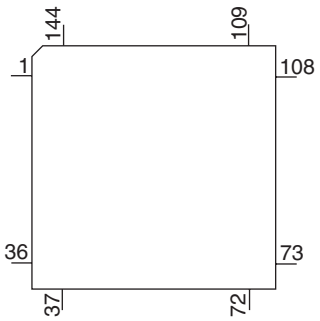


● Pin Functions (UPD63763CGJ)

Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Power supply for digital circuits
2	D1.GND		Ground for 1.6 V digital circuits
3	$\overline{\text{RESET}}$	I	Input of reset
4-8	AB12-8	I	Address bus 12-8 from the microcomputer
9-16	AD7-0	I/O	Address/data bus 7-0 to the microcomputer
17	$\overline{\text{CS}}$	I	Chip selection
18	ASTB	I	Address strobe
19	$\overline{\text{READ}}$	I	Control signals(read)
20	$\overline{\text{WRITE}}$	I	Control signals(write)
21	$\overline{\text{WAIT}}$	O	Control signals(wait)
22	INTQ	O	Interruption signals to the external microcomputer
23,24	IFMODE0,1	I	Switching the microcomputer I/F 0, 1
25	D1.VDD		Power supply for 1.6 V digital circuits
26	DA.VDD		Power supply for DAC
27	ROUT	O	Output of audio for the right channel
28	DA.GND		Ground for DAC
29	REGC		Connected to the capacitor for band gap
30	DA.GND		Ground for DAC
31	LOUT	O	Output of audio for the left channel
32	DA.VDD		Power supply for DAC
33	X.VDD		Power supply for the crystal oscillator
34	XTAL	I	Connected to the crystal oscillator(16.9344 MHz)
35	$\overline{\text{XTAL}}$	O	Connected to the crystal oscillator(16.9344 MHz)
36	X.GND		Ground for the crystal oscillator
37	VDDREG15		Control of 1.6 V regulator
38	PWMSW0	I	Setup 0 for PWM output(SD, MD)
39-41	TEST3-1	I	Connected to Ground
42	PWMSW1	I	Setup 1 for PWM output(FD, TD)
43	TESTEN	I	Connected to Ground
44	D1.GND		Ground for 1.6 V digital circuits
45	DIN	I	Input of audio data
46	DOUT	O	Output of audio data
47	SCKIN	I	Clock input for audio data
48	SCKO	O	Clock output for audio data
49	LRCKIN	I	Input of LRCK for audio data
50	LRCK	O	Output LRCK for audio data
51	$\overline{\text{XTALEN}}$	I	Permission to oscillate 16.9344 MHz
52	D1.VDD		Power supply for 1.6 V digital circuits
53	RFCK/HOLD	O	Output of RFCK/HOLD signal
54	WFCK/MIRR	O	Output of WFCK/MIRR signal
55	PLCK/RFOK	O	Output of PLCK/Output of RFOK
56	LOCK/RFOK	O	Output of LRCK/Output of RFOK
57	C1D1/C8M/(RA13)	O	Information on error correction/C8M : 8 MHz
58	C1D2/C16M/(RA12)	O	Information on error correction/C16M : 16 MHz
59	C2D1/RMUTE	O	Information on error correction/Mute for Rch
60	C2D2/LMUTE	O	Information on error correction/Mute for Lch
61	C2D3/SHOCK	O	Information on error correction/Detection of vibration
62	D1.GND		Ground for 1.6 V digital circuits
63	C33M	O	Output of 33.8688 MHz(CLK for SDRAM)
64	($\overline{\text{RCS}}$)	O	DRAM $\overline{\text{CS}}$
65	RA11	O	Output of DRAM address 11
66	(CKE)	O	Output of DRAM CKE
67	$\overline{\text{RAS}}$	O	Output of DRAM $\overline{\text{RAS}}$
68	$\overline{\text{CAS0}}$(LDQM)	O	Output of DRAM lower $\overline{\text{CAS}}$(LDQM)
69	$\overline{\text{CAS1}}$(UDQM)	O	Output of DRAM upper $\overline{\text{CAS}}$(UDQM)

Pin No.	Pin Name	I/O	Function and Operation
70	$\overline{WE}$	O	Output of DRAM $\overline{WE}$
71	$\overline{OE}$($\overline{CAS}$)	O	Output of DRAM $\overline{OE}$($\overline{CAS}$)
72	D.GND		Ground for digital circuits
73-88	RDB0-15	I/O	Input/output of DRAM data0-15
89-99	RA0-10	O	Output of DRAM address0-10
100	D.VDD		Power supply for digital circuits
101	FD+	O	Output of focus drive PWM +
102	FD-	O	Output of focus drive PWM -
103	TD+	O	Output of tracking drive PWM +
104	TD-	O	Output of tracking drive PWM -
105	SD+	O	Output of thread drive PWM +
106	SD-	O	Output of thread drive PWM -
107	MD+	O	Output of spindle drive PWM +
108	MD-	O	Output of spindle drive PWM -
109	REFOUTSV	O	REFOUT for servo
110	AD.VDD		Power supply for ADC
111	EFM	O	Output of EFM signals
112	ASY	I	Input of asymmetry
113	ATEST	O	Analog tests
114	RFI	I	Input of RF
115	AD.GND		Ground for the analog system
116	AGCO	O	Output of RF
117	C3T	O	Connection to the capacitor for detecting 3T
118	AGCI	I	Input of AGC
119	RFO	O	Output of RF(AGC)
120,121	EQ2,1	I	Equalizer 2, 1
122	RF2-	I	Reversal input of RF2
123	RF-	I	Reversal input of RF
124	A.GND		Ground for the analog system
125	A	I	Input of A
126	C	I	Input of C
127	B	I	Input of B
128	D	I	Input of D
129	F	I	Input of F
130	E	I	Input of E
131	VREFIN	I	Input of reference voltage
132	A.VDD		Power supply for the analog system
133	REFOUT	O	Output of reference voltage
134	REFC	I	Connected to the capacitor for output of REFOUT
135	FE-	I	Reversal input of FE
136	FEO	O	Output of FE
137	ADIN	I	Input of FE, TE A/D converter
138	TE-	I	Reversal input of TE
139	TEO	O	Output of TE
140	TE2	O	TE2
141	TEC	I	TEC
142	LD	O	Output of LD
143	PD	I	Input of PD
144	D.GND		Ground for digital circuits

* UPD63763CGJ

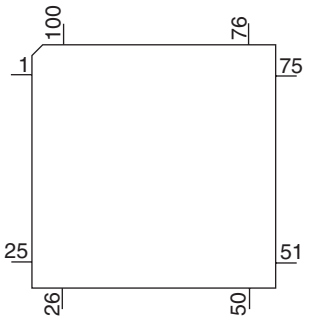


● Pin Functions (PE5505A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	AVREF			A power supply / Positive power supply(5V)
2	AVSS			A power supply GND
3	$\overline{\text{TESTIN}}$	I		Chip check test program starting input
4	CLAMP			Not used
5	EVDD			E power supply / Positive power supply
6	FMODE			For flash rewriting / L : flash rewriting mode
7	FLRQ			For flash rewriting / Reset voltage control
8	IC/FLMD0			IC : VSS direct connection/FLMOD0 : Pull-down
9	VDD			Positive power supply(5V)
10	REGC			Connected to the capacity stabilizing output of the regulator
11	VSS			GND
12	X1	I		Oscillator connection for mainclock
13	X2			Oscillator connection for mainclock
14	$\overline{\text{RESET}}$	I		System reset input
15	XT1	I		Connected to the oscillator for subclock(connected to VSS via the resistor)
16	XT2			Connected to the oscillator for subclock(Open)
17	PULLDOWN	I		Connected to EVDD or EVSS via the resistor
18	$\overline{\text{EJSW}}$			Not used
19	$\overline{\text{XINT}}$	I	C	CD LSI interruption signal input
20	NC			Not used
21	$\overline{\text{BRST}}$	I		Bus reset input
22	BSI	I		Bus serial data input
23	BSO	O	C	Bus serial data output
24	$\overline{\text{BSCK}}$	I/O	/C	Bus serial clock input/output
25	FTxD	O	C	For flash rewriting(transmitted signal)
26	FRxD	I		For flash rewriting(received signal)
27	BRXEN	I/O	/C	Bus RX enable input/output
28	$\overline{\text{BSRQ}}$	I/O	/C	Bus serial clock input/output
29	$\overline{\text{DSPOK}}$			Not used
30	DSCSNS	I	C	Disc state sense input
31	8EJ(S905)	I	C	input of detection of 8 cm disc ejection
32	12EJ(S904)	I	C	input of detection of 12 cm disc ejection
33	EVSS			E power supply GND
34	EVDD			E power supply / Positive power supply
35,36	SRAMLEVEL0,1	O		SRAM level meter output
37	EMPH	O	C	Emphasis information output
38	$\overline{\text{EMPH}}$			Not used
39	CDMUTE			Not used
40	LOEJ			Not used
41	CLCONT	O		Driver input switching output
42	HOME	I		Home SW sense input
43	$\overline{\text{ADENA}}$	O	C	A/D reference voltage supply control output
44	LRCKOK	O	C	(DOUT mute output)
45	SRAMLEVEL2	O	C	SRAM level meter output
46	CD3VON(MCKRQ)	O	C	CD + 3.3 V power supply control output(Digital output : MCKRQ)
47	CONT	O	C	Servo driver power supply control output
48	$\overline{\text{XRST}}$	O	C	CD LSI reset control output
49	VDCONT	O	C	VD power supply control output
50	$\overline{\text{XSI}}$	I		CD LSI serial data input
51	$\overline{\text{XSO}}$	O	C	CD LSI serial data output
52	$\overline{\text{XCK}}$	O	C	CD LSI serial clock output
53	$\overline{\text{XWAIT}}$	I	C	CD LSI wait control signal input
54	XASTB	O	C	CD LSI address strobe output
55	AD0	O	C	Address/data Bus 0
56	INT			Not used

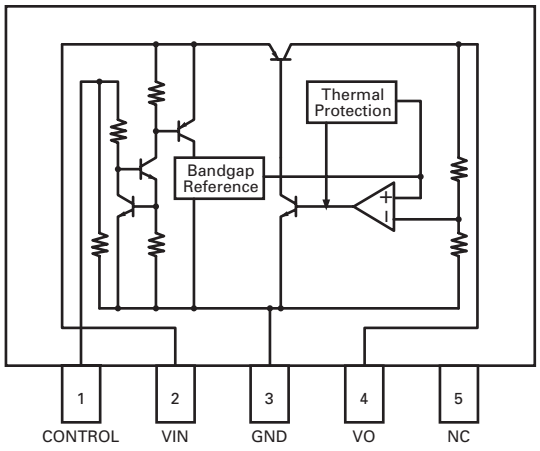
Pin No.	Pin Name	I/O	Format	Function and Operation
57	ROMDATA	I/O		E2PROM data input/output
58	ROMCK	O		E2PROM clock output
59	ROMCS	O	C	E2PROM chip selection output
60,61	NC			Not used
62	CLKOUT			Not used
63	LOCK	I		Spindle lock input
64-68	NC			Not used
69	BVSS			B power supply GND
70	BVDD			B power supply / Positive power supply
71-75	NC			Not used
76	FLMD1	I/O	/C	Address/Data Bus 5
77-90	NC			Not used
91-93	A/D			Not used
94	$\overline{\text{CSENS}}$			Not used
95	TYPE_A/D			Not used
96,97	NC			Not used
98	TEMP			Not used
99	VDSENS	I		VD power supply short sense input
100	DSCSNS			Not used

* PE5505A

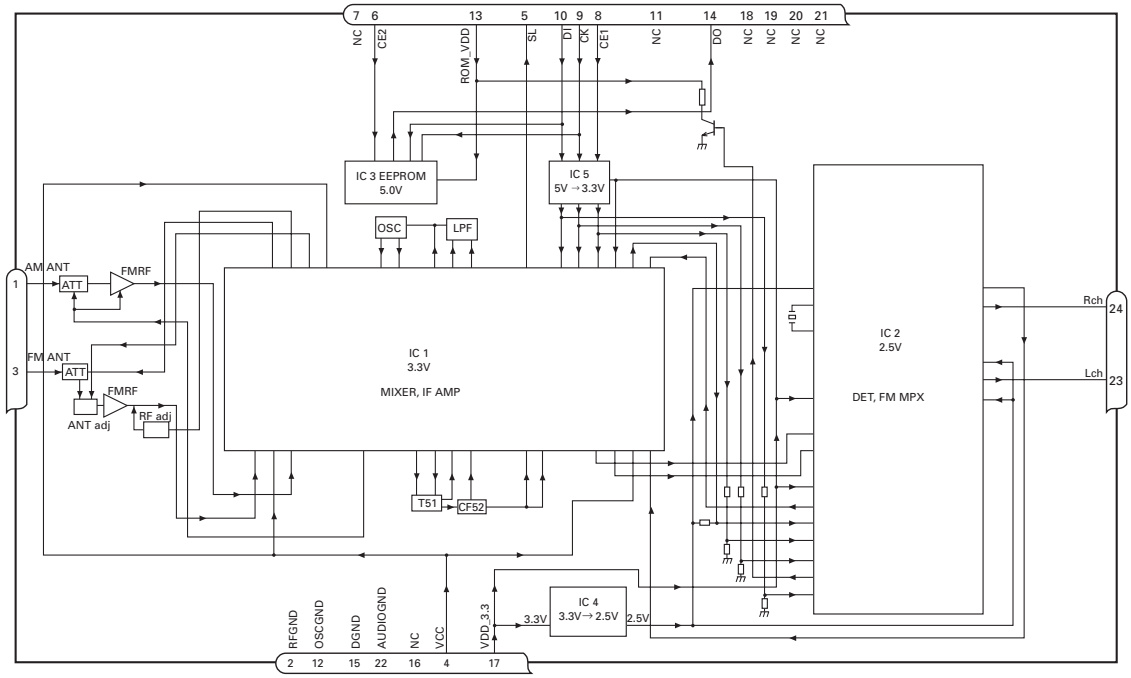


Format	meaning
C	C MOS

NJM2886DL3-33



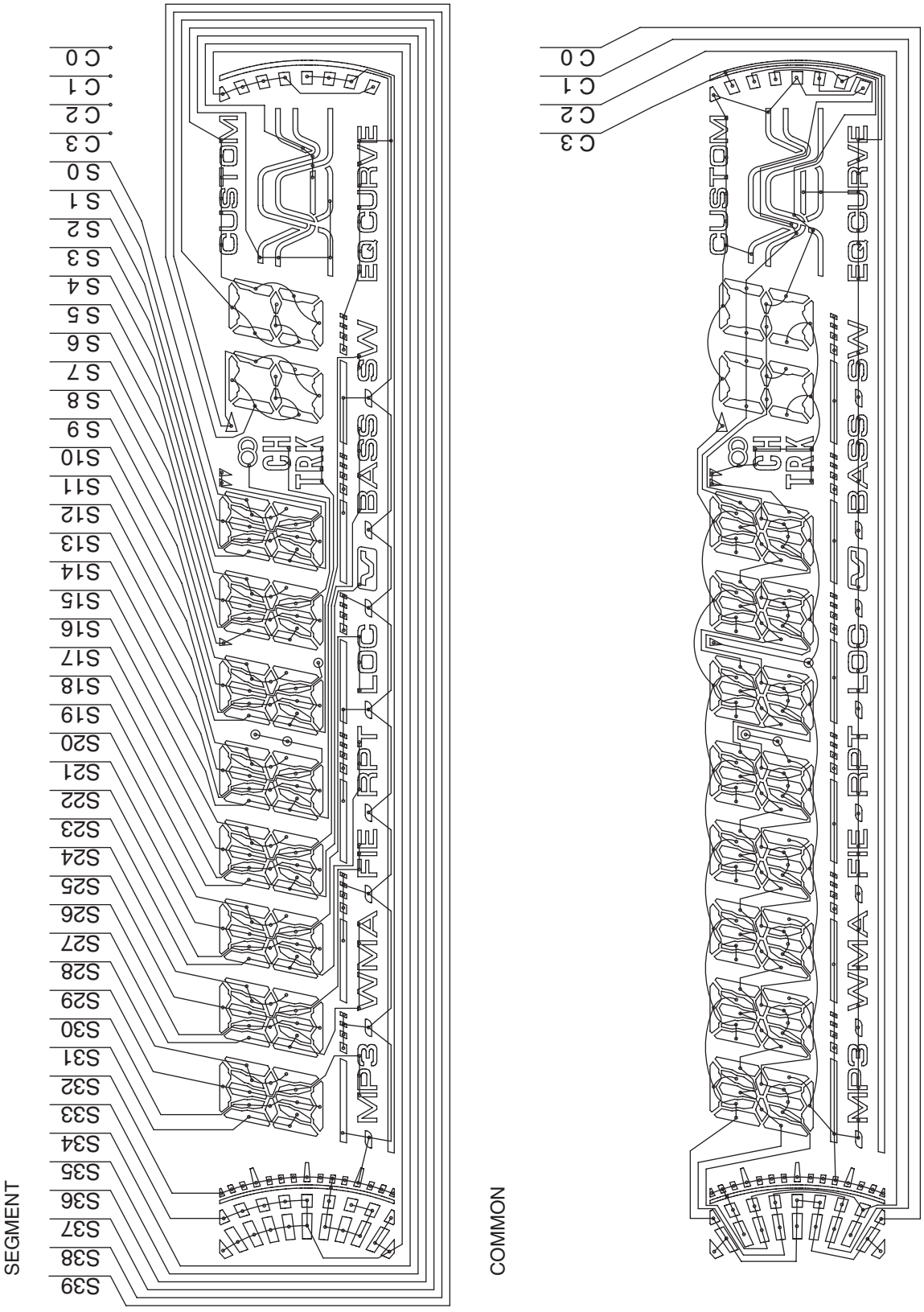
● FM/AM Tuner Unit



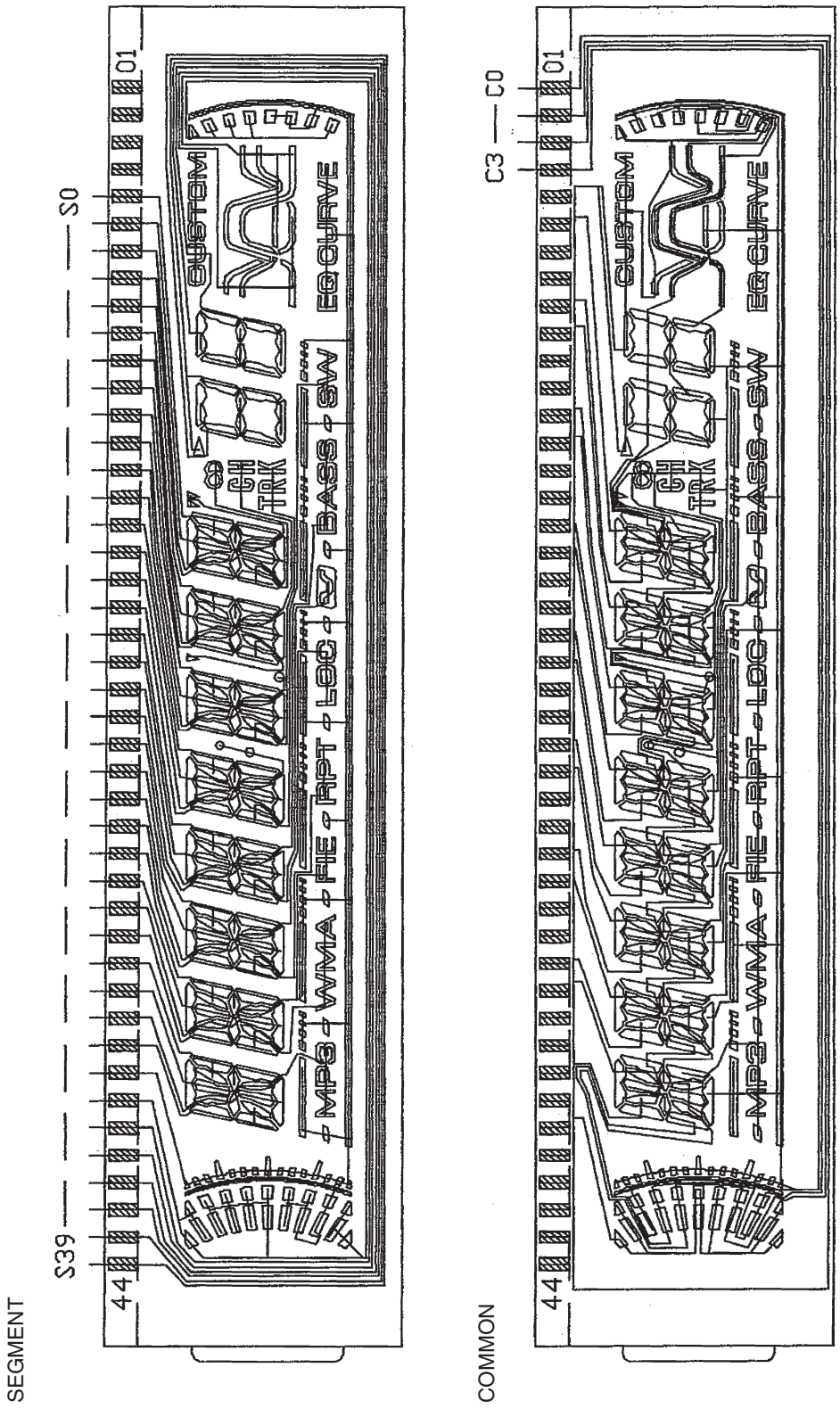
No.	Symbol	I/O	Explain	
1	AMANT	I	AM antenna input	AM antenna input high impedance AMANT pin is connected with an all antenna by way of 4.7μH. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the hum of power transmission line.
2	RFGND		RF ground	Ground of antenna block
3	FMANT	I	FM antenna input	Input of FM antenna 75Ω Surge absorber(DSP-201M-S00B) is necessary.
4	VCC		power supply	The power supply for analog block. D.C 8.4V ± 0.3V
5	SL	O	signal level	Output of FM/AM signals level
6	CE2	I	chip enable-2	Chip enable for EEPROM "Low" active
7	NC		non connection	Not used
8	CE1	I	chip enable-1	Chip enable for AF•RF "High" active
9	CK	I	clock	Clock
10	DI	I	data in	Data input
11	NC		non connection	Not used
12	OSCGND		osc ground	Ground of oscillator block
13	ROM_VDD		power supply	Power supply for EEPROM pin 13 is connected with a power supply of micro computer.
14	DO	O	data out	Data output
15	DGND		digital ground	Ground of digital block
16	NC		non connection	Not used
17	VDD_3.3		power supply	The power supply for digital block. 3.3V ± 0.2V
18	NC		non connection	Not used
19	NC		non connection	Not used
20	NC		non connection	Not used
21	NC		non connection	Not used
22	AUDIOGND		audio ground	Ground of audio block
23	L ch	O	L channel output	FM stereo "L-ch" signal output or AM audio output
24	R ch	O	R channel output	FM stereo "R-ch" signal output or AM audio output

7.2.2 DISPLAY

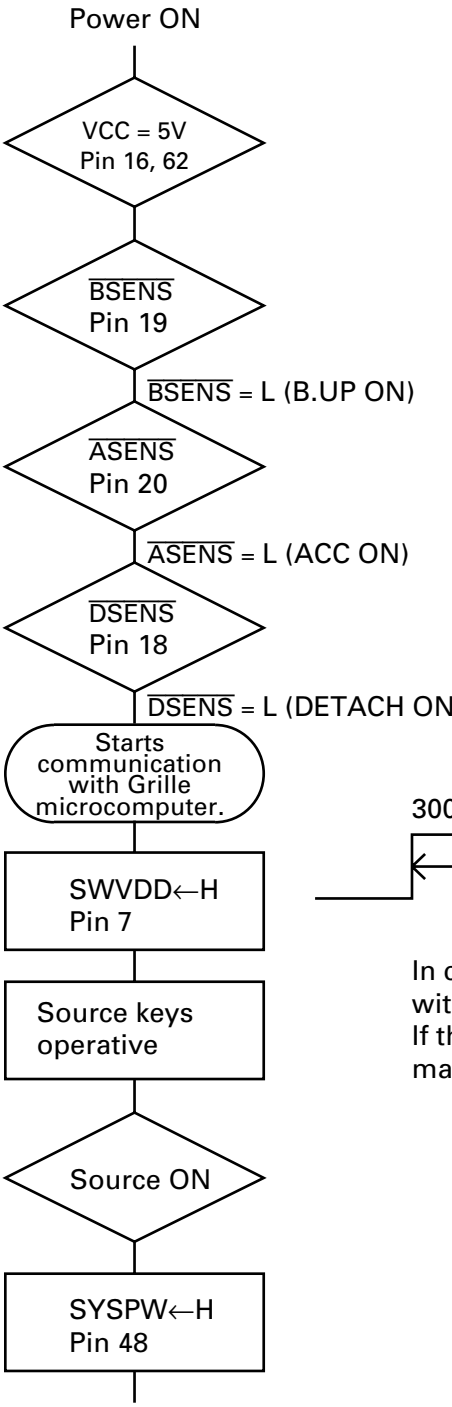
● **LCD(YAW5055)(DEH-3850MP/XU/ES, DEH-3850MP/XU/CN)**

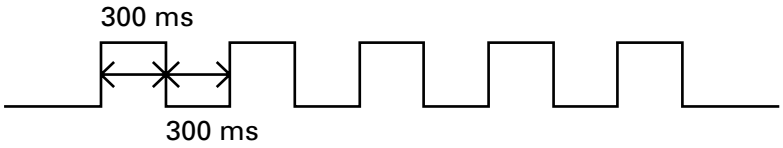


● LCD(YAW5067)(DEH-3850MPH/XU/GS)



7.3 OPERATIONAL FLOW CHART

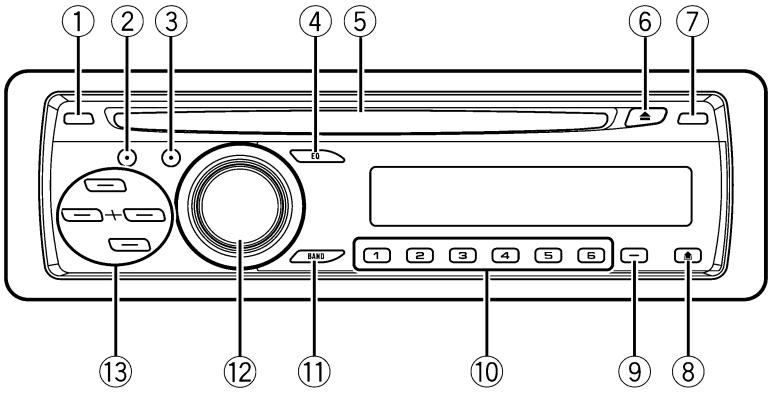




In case of the above signal, the communication with Grille microcomputer may fail.
If the time interval is not 300 msec, the oscillator may be defective.

Completes power-on operation.
(After that, proceed to each source operation)

8. OPERATIONS



Head unit

① **CLOCK button**
Press to change to the clock display.

② **AUDIO button**
Press to select various sound quality controls.

③ **FUNCTION button**
Press to select functions.

④ **EQ button**
Press to select various equalizer curves.

⑤ **CD loading slot**
Insert a disc to play.

⑥ **EJECT button**
Press to eject a CD from your built-in CD player.

⑦ **DISPLAY button**
Press to select different displays.

⑧ **DETACH button**
Press to remove the front panel from the head unit.

⑨ **SW button**
Press to select the subwoofer setting menu.
Press and hold to select the bass boost setting menu.

⑩ **1–6 buttons**
Press for preset tuning.

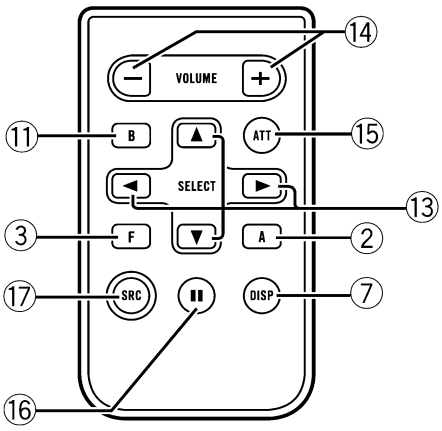
⑪ **BAND button**
Press to select among three FM bands and one AM band and to cancel the control mode of functions.

⑫ **SOURCE button, VOLUME**
This unit is turned on by selecting a source.
Press to cycle through all the available sources.
Rotate it to increase or decrease the volume.

⑬ **▲/▼/◄/► buttons**
Press to perform manual seek tuning, fast forward, reverse and track search controls.
Also used for controlling functions.

Remote control

Operation is the same as when using the buttons on the head unit.



⑭ **VOLUME button**

Press to increase or decrease the volume.

⑮ **ATT button**

Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

⑯ **PAUSE button**

Press to turn pause on or off.

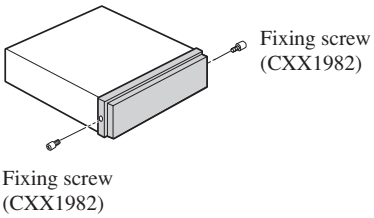
⑰ **SOURCE button**

This unit is turned on by selecting a source. Press to cycle through all the available sources. ▣

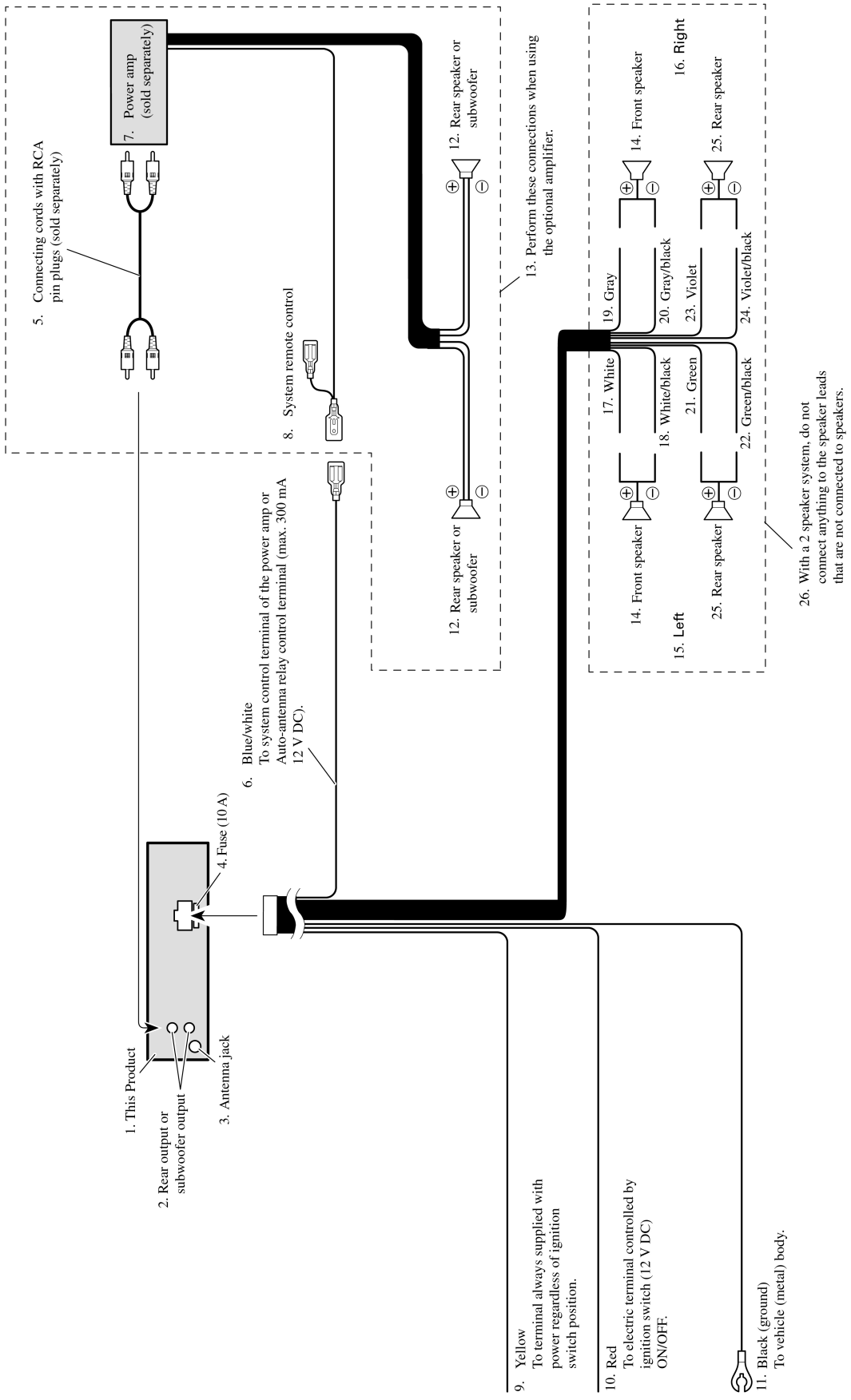
Fixing the Front Panel

If you do not operate the removing and attaching the front panel function, use the supplied fixing screws to fix the front panel to this unit.

1. Fix the front panel to the unit using fixing screws.



●CONNECTION DIAGRAM


7. Power amp (sold separately)
5. Connecting cords with RCA pin plugs (sold separately)
8. System remote control
12. Rear speaker or subwoofer
13. Perform these connections when using the optional amplifier.
12. Rear speaker or subwoofer
16. Right
14. Front speaker
25. Rear speaker
19. Gray
20. Gray/black
23. Violet
24. Violet/black
17. White
18. White/black
21. Green
22. Green/black
14. Front speaker
15. Left
25. Rear speaker
26. With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
6. Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal (max. 300 mA 12 V DC).
4. Fuse (10 A)
1. This Product
2. Rear output or subwoofer output
3. Antenna jack
9. Yellow
To terminal always supplied with power regardless of ignition switch position.
10. Red
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
11. Black (ground)
To vehicle (metal) body.

A

B

C

D

E

F

● Jigs List

Name	Jig No.	Remarks
Test Disc	TCD-782	Checking the grating
L.P.F.		Checking the grating (Two pieces)

● Grease List

Name	Jig No.	Remarks
Grease	GEM1024	CD Mechanism Module
Grease	GEM1045	CD Mechanism Module

Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008